NP6050

SERVICE MANUAL

REVISION 1

Canon

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INTRODUCTION

This Service Manual provides basic facts and figures needed to service the plain paper copier NP6050 in the field. The NP6050 is designed to enable automated copying work and may be configured with the following system components:

1. Stapler Sorter-E1/-E2
2. RDF-D1/D2

For descriptions on the system components, see their respective service manuals.

This Service Manual is organized as follows:
CHAPTER 1, "General Introduction," shows the NP6050's features, specifications, and step-by-step instructions on how to operate the copier.

CHAPTER 2, "Copying Processes," shows how the NP6050 generates copies while discussing each of the steps involved.

CHAPTER 3, "Operations and Timing," explains the NP6050's mechanical system by function and principles behind its electrical systems in relation to timing of each operation.

CHAPTER 4, "Mechanical System," explains how to disassemble/assemble and adjust the NP6050.

CHAPTER 5, "Installation," provides points to note when selecting the site of installation and instructions on how to install the NP6050.

CHAPTER 6, 'Maintenance and Inspection," provides tables of periodically replaced parts and consumables/durables as well as a scheduled servicing chart.

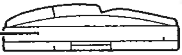
APPENDIX contains a general timing chart, general circuit diagrams, and PCB diagrams.

This Service Manual is accompanied by the Service Handbook, which contains information on how to maintain and inspect the NP6050 through adjustment and troubleshooting work.

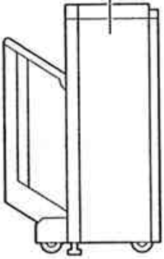
Information found in this manual may be updated from time to time for product improvement, and major updates are communicated in the form of Service Information bulletins.
All service persons are expected to be thoroughly familiar with this Service Manual, the Service Handbook, and Service Information bulletins and be ready to respond to the needs of the user promptly.

System Configuration

RDF-D1/-D2
It feeds originals from a stack one by one to the copyboard for copying. It is also capable of "stream reading," in which as many as 60 copies may be made in A4/B5/LTR.

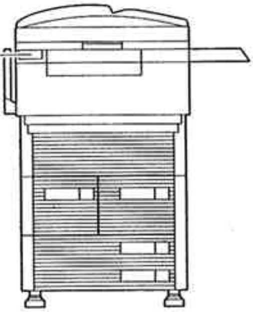


Stapler Sorter-E1/-E2
In addition to the functions of the 20-bin stapler sorter, it offers a stapling /sorting function in which sorted copies are automatically stapled.
Further, it can move the copies to the front for front collection and also deliver two or more sets of copies to a single bin (multi stacking function).



■ Paper Deck + Cassette (NP6050)

Control Card V
It assists control of the volume of copying work.



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CHAPTER 1

GENERAL DESCRIPTION

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I. FEATURES

1. The NP6050 is capable of making as many as 50 copies (A4, horizontal) every minute. With the RDF in stream reading mode, further, it can turn out as many as 60 copies every minute (A4, horizontal; one-copy-per-original).
2. It uses newly designed pick-up and feeding mechanisms so that it not only helps save space, but it also is less susceptible to jams.
3. It provides high durability and high image quality required of high-speed copying.
   The use of the Canon-unique A-Si (amorphous silicon) photosensitive drum ensures high durability while the single-component toner projection mechanism promises high-quality images for a long time.
4. It is equipped with a large-size liquid crystal display, offering easy-to-understand instructions.

II. SPECIFICATIONS

1. Type

Body	Console
Copyboard	Fixed
Light source	Halogen lamp (70 V, 265 W)
Lens	Zoom lens
Photosensitive medium	Amorphous silicon

2. System

		Front deck paper deck type
Copying		Indirect photoelectric
Charging		Corona
Exposure		Slit (moving light source)
Copy density adjustment		Automatic or manual
Development		Dry (toner projection)
Pick-up	Automatic	2 front cassettes 2 front paper deck cassettes
	Manual	Multifeeder (5.5 mm deep; 50 sheets of 80 g/m2 paper)
Transfer		Corona
Separation		Corona (static separation)
Cleaning		Blade
Fixing		Heating roller (800 W + 400 W; 120 V)

3. Performance

Original type		Sheet, book, 3-D object (2 kg max.)
Maximum original size		A3
Copying ratios	Direct	1:1
	Reduce I	1:0.500
	Reduce II	1:0.707
	Reduce III	1:0.816
	Reduce IV	1:0.865
	Enlarge I	1:2.000
	Enlarge II	1:1.414
	Enlarge III	1:1.224
	Enlarge IV	1:1.154
	Zoom	1:0.490 to 2.040 (1% increments)
Wait time		5 min or less (at 20˚C room temperature)
First copy		3.0 sec (A4, non-AE, top cassette/right deck)
Continuous copying		999 copies max.
Copy size		One-sided Metric A3 max. A6 (vertical, postcard) min. Inch 11"x17" max. STMT min. Two-sided Metric A3 max. A5 (horizontal) min. Inch 11"x17" max. STMT (horizontal) min.

Copy paper type	Cassette		• Plain Paper (64 to 90 g/m^2) A3, B4, A4, B5, A4R, B5R, 11"x17", LGL, LTR, LTR-R, A5, A5R, STMT, STMTR, Foolscap, GLTR, GLTR-R, KLGL, K-LGL-R, OFFICIO, E-OFFICIO, A-OFFICIO, B-OFFICIO, A-LTR, ALTR-R, A-LGL • Tracing Paper* (SM-1) A3, B4, A4, B5, A4R, B5R • Colored Paper (Canon-recommended) B4, A4
	Paper deck		• Plain Paper (64 to 90 g/m^2) A4, B5, LTR • Colored Paper (Canon-recommended) A4
	Multifeeder		• Plain Paper (64 to 90 g/m^2) A3, B4, A4, B5, A4, B5R, 11"x17", LGL, LTR, LTR-R, STMT-R*, postcard • Tracing Paper (SM-1)* A3, B4, A4, B5, A4R, B5R • Transparency* (Canon-recommended) A4, LTR • Colored Paper* (Canon-recommended) B4, A4 • Label Sheet (Canon-recommended) A4, LTR • Thick Paper* (91 to 200 g/m^2)
	Two-sided copying	Automatic	• Plain Paper* (64 to 90 g/m^2) A3, B4, A4, B5, A4R, B5R, 11"X17", LGL, LTR, LTR-R, A5, STMT • Colored Paper (Canon-recommended) B4, A4
		Multifeeder	• Plain Paper* (64 to 90 g/m^2) A3, B4, A4, B5, A4R, B5R, 11"X17", LGL, LTR, LTR-R, STMT-R, A5, STMT • Colored Paper* (Canon-recommended) B4, A4
	Overlay copying	Automatic	• Plain Paper* (64 to 90 g/m^2) A3, B4, A4, B5, A4R, B5R, 11"X17", LGL, LTR, LTR-R, A5, STMT • Colored Paper* (Canon-recommended) B4, A4
		Multifeeder	• Plain Paper* (64 to 90 g/m^2) A3, B4, A4, B5, A4R, B5R, 11"X17", LGL, LTR, LTR-R, STMT-R, A5, STMT • Colored Paper* (Canon-recommended) B4, A4

* May be used but may not feed as expected.

Tray	Claw		None
	Cassette		55 mm deep (500 sheets each of 80 g/m^2 paper)
	Paper deck		162 mm deep (about 1500 sheets each of 80 g/m^2 paper)
Copy tray			250 sheets (approx.; A3, 80 g/m^2)
Non-image width	Leading edge		4.0 +1.5, -1.0 mm in Direct (4.0 +1.5, -1.0 mm in non-Direct, Overlay, Two-sided)
	Trailing edge		2.0 ±1.0 mm (2.0 ±1.0 mm in non-Direct, Overlay, Two-sided)
	Left/right (1st side)	A4 horizontal, B5 horizontal, B4, A3, LTR horizontal	2.75±2.3mm
		Other sizes	3.0±2.55mm
	Left/right (2nd side)	A4 horizontal, B5 horizontal, B4, A3, LTR horizontal	2.75±2.3mm
		Other sizes	3.0±2.55mm
Auto Clear			Provided (2 min standard; may be changed from 0 to 9 min in 1-min increments and from 0 to 50 sec in 10-sec increments)
Auto Power-Off			Provided (1 hr standard; may be changed from 0 to 2 hr; in 10-min increments up to 1st 1 hr, in 1-hr increments up to 2nd hr)
Options			• RDF-D1/-D2 • Stapler Sorter-E1/-E2 • CC-V/CC-X • Sorter-G1 • Cassette Heater

4. Others

		Front paper deck
Operating environment	Temperature	7.5 to 32.5°C
	Humidity	5 to 80%
	Atmospheric pressure	0.8 to 1.0 atm
Power supply	120 V	NDK XXXXXXX
	220/240 V(AMS)	VDP XXXXXXX
	220/240 V(CA)	RDD XXXXXXX
	220/240 V	PDD XXXXXXX
Power consumption	Maximum	10/1.5 kW or less
	Standby	0.3 kWh or less (reference only)
	Continuous copying	1.2 kWh or less (reference only)
Noise	Copying	71 dB or less (sound power level by ISO standards)
	Standby	50 dB or less (as required)
ozone (avr over 8 hr)		0.05 ppm or less

Dimensions	Width	640 mm/25.2 in
	Depth	725 mm/28.5 in
	Height	1164 mm/45.8 in
Weight		185 kg/407.9 lb (approx.; w/RDF)
Consumables	Copy paper	Keep wrapped to protect against moisture.
	Toner	Avoid direct sunshine, and store at 40°C, 85% or less.

Ratio		Size	Copy size	Copies/min
Direct		A3(297×420mm)	A3	25
		A4(210×297mm)	A4	50
		B4(257×364mm)	B4	33
		B5(182×257mm)	B5	50
		A4R(297×210mm)	A4R	39
		B5R(257×182mm)	B5R	44
Reduce	I (50%)	A3→A5R	A5R	40
	II (70%)	A3→A4R	A4R	37
		B4→B5R	B5R	41
		A4→A5	A5	51
	III (81%)	B4→A4R	A4R	38
	IV (86%)	A3→B4	B4	32
		A4→B5	B5	51
Enlarge	I (200%)	A5R→A3	A3	25
	II (141%)	A4R→A3	A3	25
		B5R→B4	B4	33
		A5→A4	A4	51
	III (122%)	A4→B4	B4	33
	IV (115%)	B4→A3	A3	25
		B5→A4	A4	51

Table 1-201 Copying Speed (copier only)

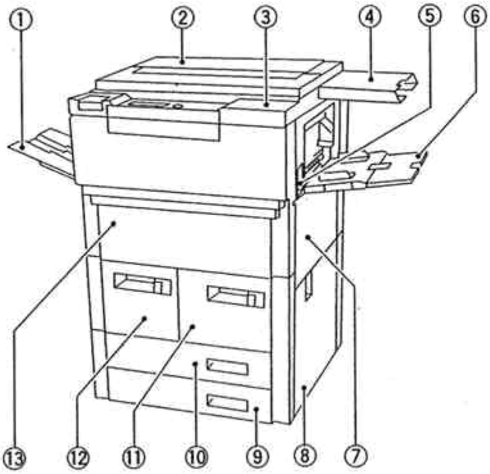
Ratio		Size	Copy paper size	Copies/min
Direct		LTR	LTR	50
		11"×17"		25
		LGL	LGL	34
		LTRR	LTRR	41
		STMT/STMTR		50
Reduce	I (50%)	11"×17"→STMTR	STMTR	44
	II (64.7%)	11"×17"→LTRR	LTRR	38
	III (73.3%)	11"×15"→LTRR	LTRR	39
Enlarge	I (200%)	STMR→11"×17"	11"×17"	25
	II (129.4%)	LTRR→11"×17"	11"×17"	25
	III (121.4%)	LGL→11"×17"	11"×17"	25

Table 1-202 Copying Speed (copier only)

Specifications are subject to change without notice.

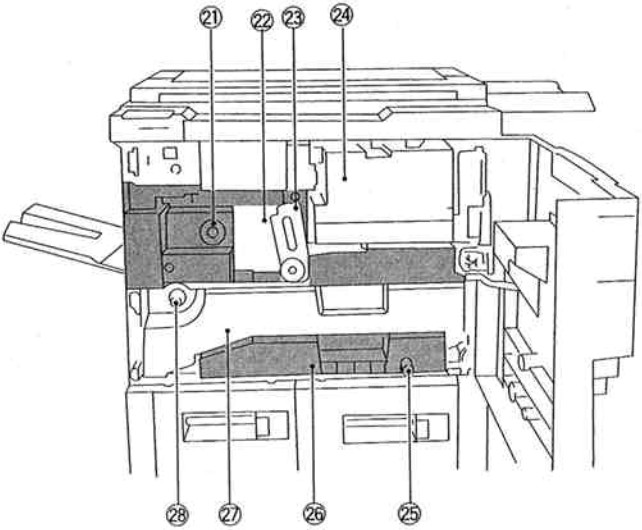
III. NAMES OF PARTS

A. External View



① Copy tray
② Copyboard cover
③ Toner supply mouth
④ Original tray/manual holder
⑤ Power switch
⑥ Multifeeder
⑦ Upper right door
⑧ Lower right door
⑨ Cassette 4
⑩ Cassette 3
⑪ Right deck
⑫ Left deck
⑬ Front door

Figure 1-301



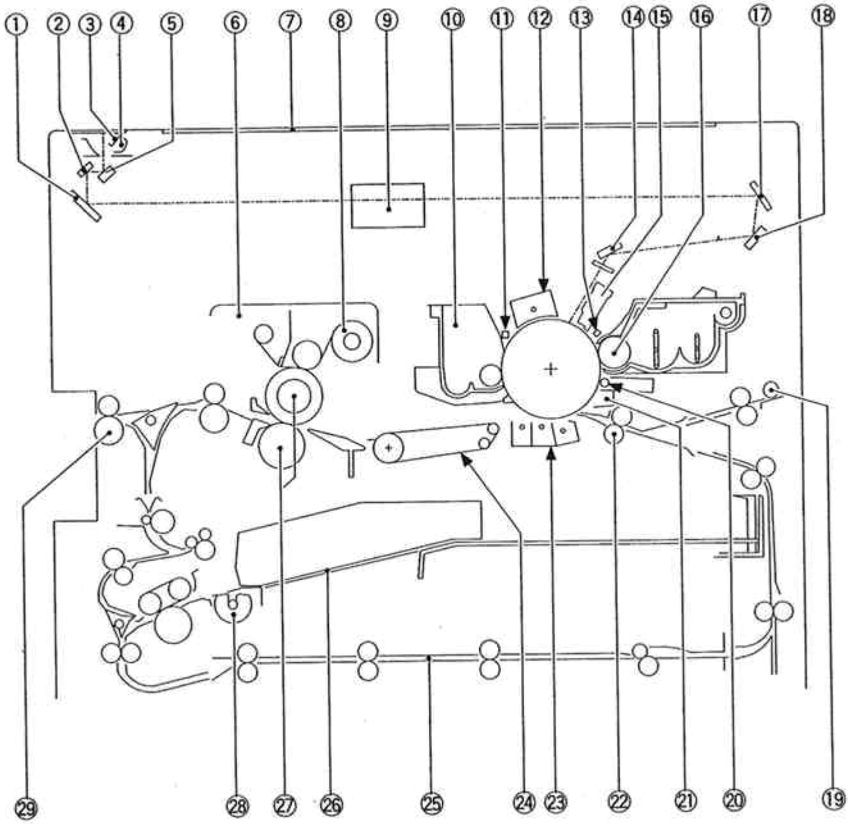
㉑ Fixing assembly knob
㉒ Fixing/feeding assembly
㉓ Fixing/feeding assembly releasing lever
㉔ Toner hopper

㉕ Holding tray feeding knob
㉖ Holding tray feeding assembly
㉗ Holding tray assembly
㉘ Holding tray knob

Figure 1-302

B. Cross Section

1. Cross Section of the Body



① No. 3 mirror	⑫ Primary charging assembly	㉒ Registration roller
② No. 2 mirror	⑬ Potential sensor	㉓ Transfer/separation assembly
③ Heat rays absorption glass	⑭ No. 6 mirror	㉔ Feeding belt
④ Scanning lamp	⑮ Blank exposure lamp	㉕ Duplexing unit feeding assembly
⑤ No. 1 mirror	⑯ Developing cylinder	㉖ Holding tray
⑥ Fixing assembly	⑰ No. 4 mirror	㉗ Fixing roller
⑦ Copyboard glass	⑱ No. 5 mirror	㉘ Holding tray pick-up (crescent) roller
⑧ Fixing cleaner	⑲ Multifeeder pick-up roller	㉙ Delivery roller
⑨ Lens	⑳ Roller electrode	
⑩ Drum cleaning assembly	㉑ Pr-transfer charging assembly	
⑪ Pre-exposure lamp		

Figure 1-303

IV. OPERATIONS

A. Control Panel

① Touch panel display	⑧ User Mode key
② Reset key	⑨ Toner supply mouth
③ Stop key	⑩ Guide key
④ Start key	⑪ Pilot lamp
⑤ Keypad	⑫ ID key
⑥ Pre-Heat key	⑬ Clear key
⑦ Interrupt key	⑭ Preferences key

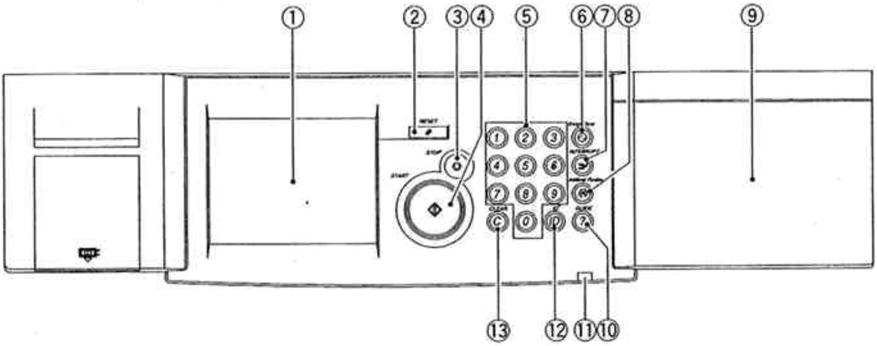

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Figure 1-401

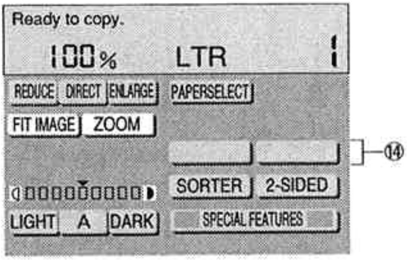

Ready to copy.
100%
LTR
1
REDUCE
DIRECT
ENLARGE
PAPERSELECT
FIT IMAGE
ZOOM
SORTER
2-SIDED
LIGHT
A
DARK
SPECIAL FEATURES
⑭

Figure 1-402

B. Basic Operations

1) Turning on the power.
   ① The Wait indicator will remain on in green.
   ② Normally, the wait time is 5 min (at 20° room temperature).

Reference:
You may select auto start during wait time.

2) Raise the copyboard cover/RDF, and place an original face down; then, lower the copyboard cover/RDF.
3) Select the appropriate reproduction ratio.
   ① Reduce/Direct/Enlarge Key
   Use the key to make a default-size copy of a default-size original.
   ② Zoom key
   Use it to select a reproduction ratio between 49% and 204% in 1% increments.
   ③ Size Fine-Tune Key
   Use it to make a 93%* copy.
   *May be changed between 90% and 99% in 1% increments.
4) To select a copy size, select the appropriate paper source using the Paper Select key.
   ① If the appropriate source is not available, place paper on the multifeeder tray.
5) Select the appropriate copy density.
   ① To copy in AE (automatic density adjustment) mode, press the AE key, and check to make sure that the notation A becomes highlighted.
   ② To obtain a darker copy through manual adjustment, press the Darker key (Copy Density key) so that the blinker moves to the right; to obtain a lighter copy on the other hand, press the Lighter key so that the blinker moves to the left.

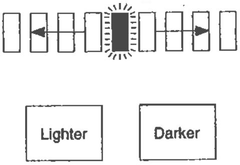


Figure 1-403

Note:
If you are using a highly transparent original (transparency for example), use manual adjustment.

6) Set a copy count (1 to 999) using the keypad, and check the copy count indicator.
   ① If you cannot set a count using the keypad or made a mistake, press the Clear key Ⓒ, and try once again.
7) Press the Copy Start key ◈.
   ① If you have placed an original on the RDF's original tray, the original will be picked up and copying will start automatically.
   ② As many copies as set will be made automatically.
   ③ You may perform any of the following keys as necessary between when copying starts and as many copies as set are made.
   - Stopping the Copying Operation
     To stop continuous copying operation, press the Stop key ▽ or the Reset key (//) ; copying will stop after processing the ongoing copying run.
   - Changing from AE (automatic density adjustment) Mode to Manual Density Adjustment Mode
     You may switch from AE to manual mode during continuous copying.
     If the copies are too dark or too light in AE mode, switch to manual mode and make copies while adjusting the density by the Copy Density key with reference to the copies made in AE.
     You cannot, however, switch from manual to AE mode during continuous copying.
   - Interrupting Copying Operation

You can interrupt continuous copying operation to make copies using new copying settings. Press the Copy Star key ◈ thereafter so that copying will resume using the previous settings.

Note:
During continuous copying, inputs from keys other than the Clear Stop key ▽, Reset key (//) , Interrupt key ⊟ , and the Copy Density key will not be accepted.

④ If the paper source runs out of paper during continuous copying, the copier indicates the message 'Add Paper' on the message display on its control panel and stops copying operation.
If this happens, supply paper and press the Copy Start key so that the remaining number of copies will be made automatically.
The mechanism, however, will not work if 'auto cassette change function ON' is selected.

⑤ If a paper jam occurs during copying operation, the copier will indicate the message 'Jam' on the message display on its control panel and stops copying operation.
The copy count indicator will indicate the remaining number of copies after jam removal.

⑥ If the copier is left alone for about 2 min after copying operation or key operation, the copier will return to standard mode (auto clear function).
- The auto clear time may be changed in user mode.

C. Auto Start

You may select auto start while the copier is in wait state.

The wait period refers to any of the following:

- During wait state after power-on.
- During wait state after deselecting preheat mode.
- During wire cleaning.
- During wait state after removing a jam.

Place an original, select the appropriate copying mode, and press the Copy Start key while the copier is in wait state.

The Start indicator will change from green to orange to indicate that auto start has been selected. (You cannot use interrupt mode.)

Copying will start automatically with the selected copying mode as soon as the copier enters standby state.

You may deselect auto start by pressing the Clear key C or Reset key // .

D. Pre-Heat Mode and Auto Power-Off Mode

1. Using Pre-Heat Mode

A press on the Pre-Heat during standby activates pre-heat mode, turning off all indications on the control panel except the Power indicator and Pre-Heat indicator.

① During pre-heat mode, inputs from keys other than the Pre-Heat key will not be accepted.

② During pre-heat mode, the control temperature of the fixing assembly is lowered.
As many as four temperature settings are available, selectable in user mode.

③ Pre-heat mode may be deselected by pressing the Pre-Heat key.

2. Using Auto Power-Off Mode

The copier will turn itself off if left alone for a specific period of time (auto power-off; however, the fans keep rotating for a specific period of time).

① The copier enters auto power-off state about one hour after the last operation. (The time may be changed between 10 min and 2 hr in user mode or disabled in user mode.)

Note:
This mode may be disabled in service mode.

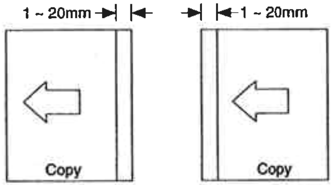
E. Creating a Binding Margin

You can create margins on the left/right or top/bottom of copies by operating the Binding key.

Reference:
The copier creates a margin for binding on the left/right or top/bottom of copies by moving the image of the original to the left/right or top/bottom.

① The binding margin may be 1 to 20 mm in 1-mm increments.

② Select top/right/top/bottom binding mode first. Then, set the width for the front and back in the case of left/right binding independently and the binding width in the case of top/bottom binding.



Right binding

Left binding

Figure 1-404

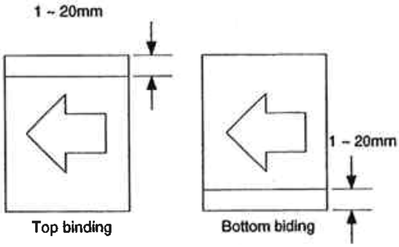


Figure 1-405

F. Erasing Frames

1. Erasing Original Frames

You may make copies free of the frame image of the original by pressing the Original Frame Erase key.

In this mode, the copies will have a margin of about 2 mm in width on their sides in relation to the selected original size.

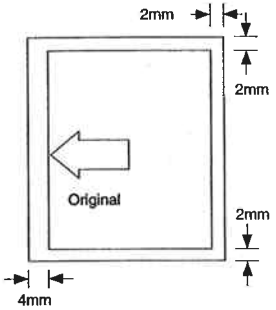


Figure 1-406

2. Erasing Sheet Frames

You may make copies with their margins free of images by pressing the Sheet Frame Erase key.

In this mode, a margin about 7 mm in width on the sides of the copies will be free of images.

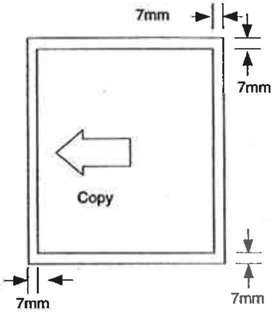


Figure 1-407

3. Erasing Hole Images

You may press the Hole Image Erase key so that the copies will be free of images of holes that may be made in originals.

In this mode, a margin of about 20 mm* in width is created along the trailing edge of the copy.

*May be varied between 1 and 20 mm with default at 18 mm.

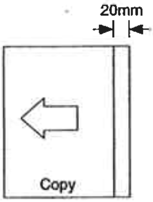


Figure 1-408

4. Erasing Book Frames

You may make copies free of the frame image of a book by pressing the Book Frame Erase key (2 mm wide on the sides and 20 mm wide along the center).

The width along the center may be changed in 20 ±10 mm in 1-mm increments.

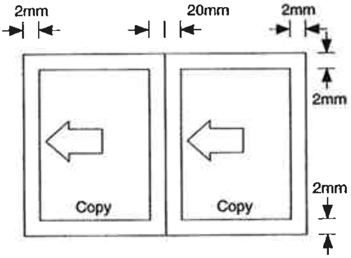


Figure 1-409

G. Making Two-Sided Copies

Using the Two-Sided Copy key, you may make copies in any of the following modes:

- From One-Sided Originals to Two-Sided Copies
  You can make a two-sided copy from two one-sided originals.
  In addition, you may press the Page Separation key for page separation two-sided copying mode.
- From Two-Sided Originals to Two-Sided Copies
  You can make a two-sided copy from a two-sided original.
- From Two-Sided Originals to One-Sided Copies
  You can make two one-sided copies from one two-sided original.
- Select 'one-sided ▶ two-sided' as standard mode.

Note:
Select the notation 'two-sided' in black text against a white background to make one-sided copies from one-sided originals.
Select the notation 'one-sided ▶ two-sided' to make two-sided copies from one-sided originals.

- To change modes, use service mode (*5*). Change the setting of '2 SIDE_SEL' (1 for default, and 0 for disable).
- Points to Note When Changing '2 SIDE_SEL' Setting
  To change from 'one-sided ▶ two-sided' to 'two-sided' representing the standard mode in two-sided mode key, change '1' to '0' for '2 SIDE_SEL', and execute 'Setting Specifications and Initializing Standard Mode' in user mode; the notation 'two-sided' will not appear unless you have initialized standard mode.
  If the setting of '2 SIDE_SEL' is '1', you cannot register 'two-sided' under standard mode; i.e., the Register key will not be accepted.

H. Making Overlay Copies

You can make overlay copies by operating the Overlay Copy key.

You may press the Page Separation key at the same time for page separation overlay copying.

I. Enabling Auto Paper Selection

When you select this mode, the copier will automatically select the paper source containing paper of the appropriate size in relation to the selected reproduction size.

If no such source of paper is available, the copier will select the cassette containing the paper that accommodates the most amount of image and indicates a message to that effect. (In response to the message, press the Copy Start key once again to start copying; to stop copying, press the Stop/Reset key.)

Note:
The paper set on the multifeeder is considered for auto paper selection.

J. Enabling Auto Ratio Selection

When you have selected this mode, the copier will select the most appropriate reproduction ratio in relation to the selected original and copy sizes.

Note, however, that the RDF will convert any non-default original size into a default size so that auto ratio selection will be executed with reference to default sizes.

Note:
You cannot select auto reproduction ratio in combination with auto paper selection.

K. Interrupting Copying Operation

You can interrupt ongoing continuous copying operation to make copies of a different original.

1) Press the Interrupt key to select interrupt mode.
   ① Auto paper selection is not available.
   ② You may feed paper manually in the RDF.
   ③ Interrupt mode is available only when you have not selected auto start mode.
2) To deselect interrupt mode, press the Interrupt key once again.

L. Page Composition Mode

In page composition mode, two or four originals will be reduced and copied on one sheet of paper.

This mode may be any of the following four types:

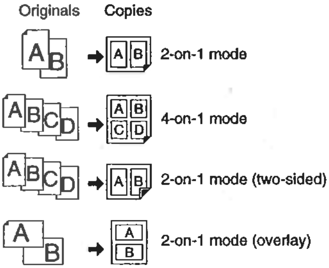


Figure 1-410

Note:
If a mode that necessitates counting of originals has been selected, non-sort mode will be selected under the following conditions:

- In one-sided mode, there are two or fewer originals.
- In 2-on-1 mode, there are two or fewer originals.
- In 4-on-1 mode, there are four or fewer originals.
- In 2-on-1 two-sided mode, there are four or fewer originals.
- In 2-on-1 overlay mode, there are two or fewer originals.

Note that this does not apply to page separation two-sided or page separation overlay mode, since the originals are not counted in these modes.

M. Cover Mode

If you are using the RDF, you may put covers by selecting this mode:

- Select cover copying to add a cover.
- Select back cover copying to add a back cover.
- Select interleaf copying to insert interleaves.

You may copy images of originals on the cover, back cover, and interleaves in any available modes (two-sided, for example).

If you are combining back cover copying with 'one-sided ▶ one-sided' or 'two-sided ▶ one-sided', you can select the side (face or back) of the back cover for copying.

① For front, back cover, and interleaves, the sources of paper may be selected independently; however, the sizes must be the same.

② No more than 20 interleaves may be inserted.

N. Using ID Mode

In ID mode, the copier will not be ready for operation unless a 6-digit ID number is entered. As many as 300 ID numbers may be stored, and copying volume may be indicated by number for control according to group.

1. Storing ID Numbers

1) Press [user mode], [ID], [stop], and [user mode] in sequence.
2) Select 'storing ID number' on the message display, and press the [OK] key.
3) Press [group] to highlight, and enter the appropriate group number; then, press ID, and enter a 6-digit ID number.
   When the [ID] key is pressed to end the registration, the ID Number Input screen appears.

2. Entering ID Numbers

1) Enter any number that has been stored using the ID Number Input screen and the keypad.
   If you made a mistake, press the Clear key [C], and try once again.
2) Press the [ID] key.
3) Wait so that the copier will be ready for operation after validating the number.
4) Press the [ID] key to return to the ID Number Input screen.

3. Controlling the Count Readings

You can operate so that the copier displays the number of copies that have been made according to ID number.

1) Press [user mode], [ID], [stop], and [user mode] in sequence.
2) Select 'count control' on the message display, and press the [OK] key.
3) Press the ▼ key to scan through the count readings of copies made under each number. (You may directly enter a specific ID number.)

4. Initializing Count Readings of All ID Numbers

1) Press [user mode], [ID], [stop], and [user mode].
2) Select 'count control' on the message display, and press the [OK] key.
3) Select 'count all clear', and press the [OK] key to clear the readings of all ID numbers.

> **Note:**
> You cannot initialize the count readings individually.

5. Initializing All ID Numbers

1) Press [user mode], [ID], [stop], and [user mode].
2) Select 'storing ID number' on the message display, and press the [OK] key.
3) Select 'ID number all clear', and press the [OK] key to initialize all ID numbers.

O. User Mode

1. Types of User Modes

The NP6050 offers the following four user modes, in which the user may freely select specific settings.

1. Specifications
2. Adjustment/cleaning
3. Timer
4. Preferences function

1. Specifications

Item (on display)	Description	Remarks
auto sort ON/OFF	Use it to select or deselect automatic sorting when using the RDF and making copies of multiple originals (copy count 2 or higher).	At shipment: ON
sorter front collection ON/OFF	Select ON when the sorter is connected so that the sorter will move the copies to the front for collection. Select OFF when the sorter is not connected so that the sorter will not move the copies to the front for collection (no command will be issued).	At shipment: ON Copy paper: A4, B5, LTR horizontal
skip mode ON/OFF	Use it so that a distinguishing mark (holes for example) on odd pages will not appear on the right of even pages or vice versa. ON: Enables skip copying. OFF: Disables skip copying.	At shipment: ON
feeder manual auto start ON/OFF	Use it to specify whether copying should start as soon as an original is pulled in manual mode using the RDF or whether copying should start in response to the Copy Start key, thereby allowing selection of copying mode. ON: Enables auto start copying. OFF: Disables auto start copying.	Factory setting: ON
auto cassette change/APS ON/OFF	Use it to specify whether copying should continue by automatically switching to a different cassette if the selected cassette runs out of copy paper in continuous copying mode. ON: Enables auto cassette change/APS. OFF: Disables auto cassette change/APS.	Factory setting: ON
manual size specification ON/OFF	Use it to specify whether the Multifeeder Size Input screen should be displayed when the multifeeder is selected. ON: Display the screen. OFF: Do not display the screen.	Factory setting: ON

Table 1-401(a)

Item (on display)	Description	Remarks
Buzzer ON/OFF	Use it to specify whether the buzzer should be sounded in response to inputs, warnings, standby, and copying end. ON: Enables the buzzer. OFF: Disables the buzzer.	Factory setting: ON
size fine-tune ratio	Use it to specify the ratio to be used for size fine-tuning between 90% and 99% in 1% increments.	Factory setting: 93%
size fine-tuning centering ON/OFF	Use it to specify centering for size fine-tuning. ON: Enables centering. OFF: Disables centering.	Factory setting: ON
size fine-tuning non-image ON/OFF	Use it to specify whether a non-image width should be created for size fine-tuning. ON: Create non-image width. OFF: Do not create non-image width.	Factory setting: OFF
pre-heat mode change	Use it to enable/disable lowering of power consumption for the copier in pre-heat mode and by what %. 10%: saving of 10% 25%: saving of 25% 50%: saving of 50% None: no saving (saving of 0%)	Saving: Rate of saving in relation to the total copier power consumption.
specifications initialization	Use it to decide whether to initialize or not initialize specifications in user mode.	
standard mode change	Use it to store the mode to be selected in response to a press on the Reset key (or when auto clear is activated). The user may choose factory setting as part of initializing standard mode.	Factory mode Ratio: 100% Paper: Auto selection Density: Manual Copy count: 1

Table 1-401(b)

2. Adjustment/Cleaning

Item (on display)	Description	Remarks
wire cleaning	Use it to so that the primary charging wire, pre-transfer charging wire, and separation charging wire may be cleaned automatically.	
feeder cleaning	Place ten sheets of blank paper on the feeder tray, and press the OK key. The blank sheets will be fed in 'one-sided to one-sided' copying mode, thereby cleaning the separation belt and feeding roller.	
zoom fine adjustment	Use it to fine-adjust the vertical and horizontal reproduction ratios in 0.2% increments. Width: -1.0% to +1.0% Unit: 0.2%	

Table 1-402

3. Timer

Item (on display)	Description	Remarks
auto clear time	Use it to set the auto clear time between 1 and 9 min in 1-min increments or between 0 and 50 sec in 10-sec increments. You may disable the auto clear mechanism by setting it to 0 sec.	Factory setting: 2 min
auto power-off time	Use it to set the auto power-off time between 10 min and 2 hr in 10-min increments (up to 1st hr) and in 1-hr increments (from 1st to 2nd hr). You may disable the auto power-off mechanism.	Factory setting: 1 hr
weakly timer	Set it to 'none' for the time of the day of the week (Mon. through Sun.) if you do not want the copier to turn off. (Make sure that the current date and time are correct to ensure that the copier turns off as set.)	
time/day	Use it to set the built-in clock, thereby setting the time and the day of the week.	The control panel will not display the time or the day of the week; set it for the weekly timer.

Table 1-403

4. Preferences

Item (on display)	Description	Remarks
user customized key	Use it to set mode setting keys of preferences on the standard screen.	Maximum:2 keys

Table 1-404

V. WARNINGS AND ACTIONS TO TAKE

A. Jam Indication

Perform the following when the control panel indicates the Jam message/icon.

For jams occurring in an option (sorter, RDF), see their respective Service Manuals.

If the jam is in the copier, be sure to check the pick-up assembly, separation/feeding assembly, fixing/delivery assembly, cleaning assembly, and duplexing/feeding assembly first and remove all paper.

1. Jam in Unit 1 (fixing/feeding assembly)

1) Open the copier's front door, and shift the releasing lever on the fixing assembly into release (horizontal) position.

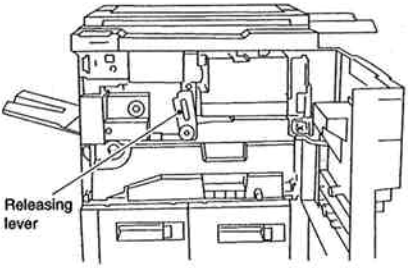


Figure 1-501

2) Pull the releasing lever of the fixing/feeding assembly toward the front to unlock the assembly, and pull the assembly toward the front.

3) Open the left cover of the fixing unit, and remove the paper from the cover while turning the fixing knob.

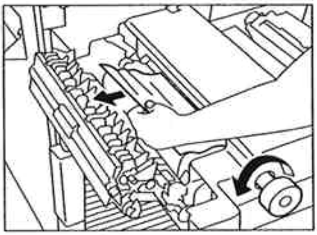


Figure 1-502

4) Remove all pieces of paper from the fixing/feeding assembly; then, close the left cover of the fixing unit, and push in the fixing/feeding assembly.
5) Lock the releasing lever of the fixing/feeding assembly by shifting it to horizotnal position.
6) Close the front door.

2. Jam in Unit 2 (holding tray assembly)

1) Open the copier's front door, and pull out the holding tray assembly to the front while holding the grips on the holding tray assembly.

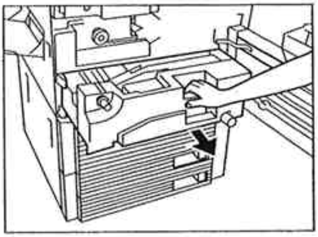


Figure 1-503

2) Remove all pieces of paper from the holding tray assembly.

3) Open the left cover of the holding tray assembly, and remove the paper.

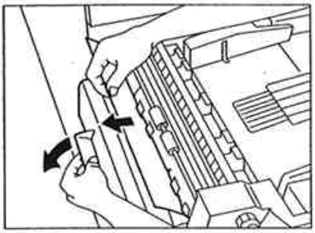


Figure 1-504

4) Give the holding tray feeding knob about three clockwise turns.

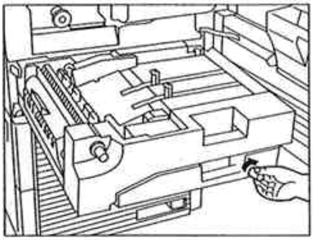


Figure 1-505

5) Push in the holding tray assembly into the copier.

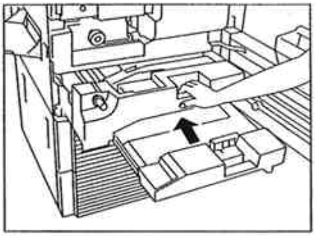


Figure 1-506

6) Open the cover of the holding tray feeding assembly, and remove the paper.

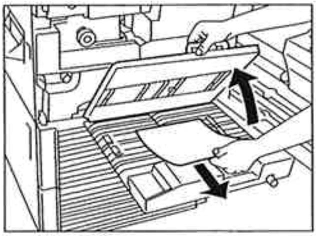


Figure 1-507

7) Close the cover, and push in the holding tray feeding assembly into the copier.
8) Close the front door.

3. Jam in Unit 3 (holding tray feeding assembly)

1) Open the copier's front door, and pull out the holding tray feeding assembly while holding the grips on the holding tray feeding assembly.

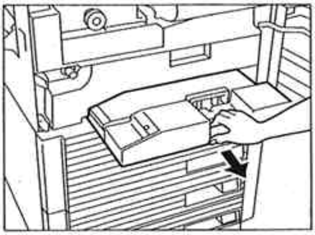


Figure 1-508

2) Open the cover of the holding tray feeding assembly, and remove the paper.
3) Close the cover, and push in the holding tray feeding assembly into the copier.
4) Close the front door.

4. Jam in the Multifeeder Assembly

1) Open the multifeeder, and open the multifeeder cover while holding the grips on the multifeeder.

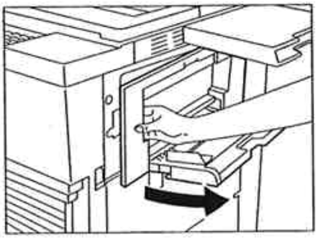


Figure 1-509

2) Remove the paper, and close the multifeeder cover.

5. Jam in the Right Door Assembly

1) Open the upper right door and the lower right door.

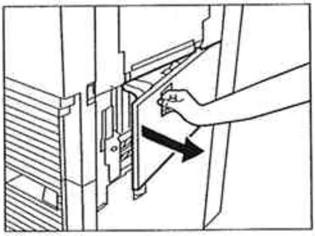


Figure 1-510

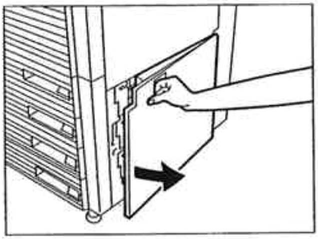


Figure 1-511

2) Remove the paper, and close the upper right door and the lower right door.

6. Jam in the Cassette Holder/Paper Deck

1) Open the cassette/paper deck indicated on the display.
2) Remove the paper, and close the cassette/paper deck.

In the case of the left deck, perform the following steps additionally:

3) Open the copier's front door, and pull out the holding tray feeding assembly to the front while holding the grips on the holding tray feeding assembly.

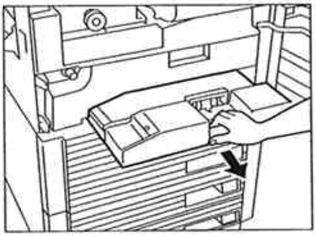


Figure 1-512

4) Open the cover of the holding tray feeding assembly, and remove the paper.

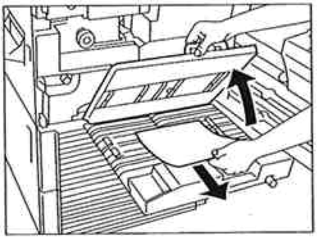


Figure 1-513

5) Close the cover, and push in the holding tray feeding assembly.
6) Close the front door.

B. Add Paper Indicator

The display on the control panel indicates the message Add Paper when the cassette, paper deck, or multifeeder runs out of paper.

Reference:

The copier will also indicate the message Add Paper when the selected cassette is not fully pushed inside the copier.

1. Adding Paper to the Cassette/Paper Deck

1) Holding the grip on the cassette/paper deck, pull it to the front until it stops.
2) Take out copy paper from the package, and place it in the cassette while orienting the stack correctly and butting it against the right side of the cassette.
3) Push in the cassette/paper deck slowly inside the copier until it stops while holding its grip.

C. Supplying Toner

The display on the control panel will indicate the message Add Toner when the hopper or the developing assembly runs out of toner.

1. Supplying Toner

1) Open the toner supply cover.

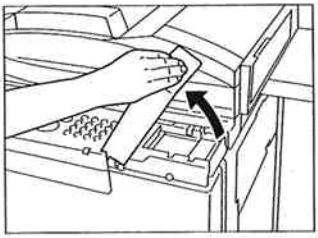


Figure 1-514

2) Hold the toner bottle in both hands, turn it upside down several times so that the toner inside will be even.

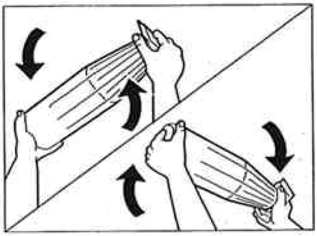


Figure 1-515

3) Fit the boss on the toner bottle in the groove of the toner supply mouth, and force the bottle against the toner supply mouth until a click is heard.

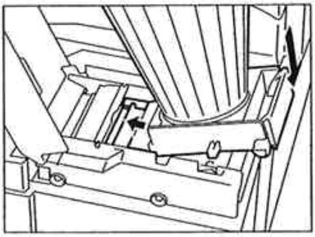


Figure 1-516

4) While lightly holding the toner bottle, pull the black toner shutter of the copier to the right at the bottom.

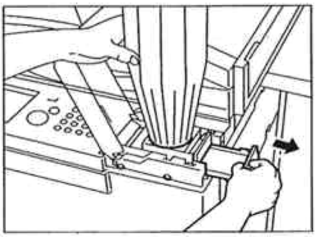


Figure 1-517

5) Holding the shutter of the toner bottle, slide it out until it stops.
Toner will fall into the hopper.

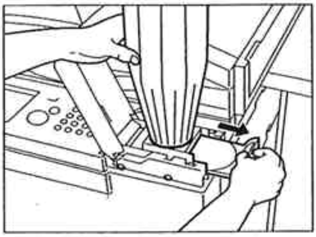


Figure 1-518

6) Tap on the top of the toner bottle lightly so that all toner will fall into the hopper.

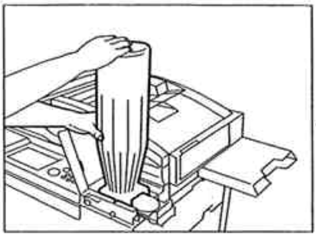


Figure 1-519

7) Holding the shutter of the toner bottle, push it to the left until it stops.

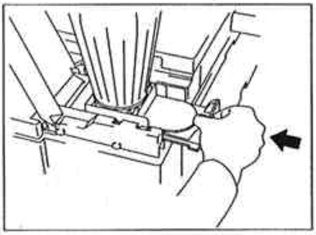


Figure 1-520

8) Holding the shutter of the copier, push it to the left until it stops.

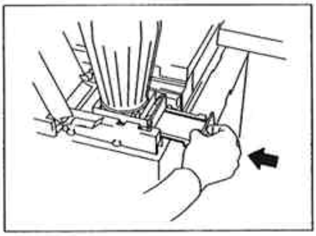


Figure 1-521

9) Push the shutter of the copier until it comes to the marking ⏮ indicated on the hopper assembly.
   - This will unlock the toner bottle.

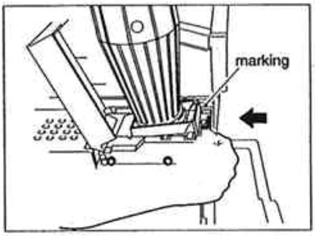


Figure 1-522

10) Pull the toner bottle upward at an angle (upper left) to detach.

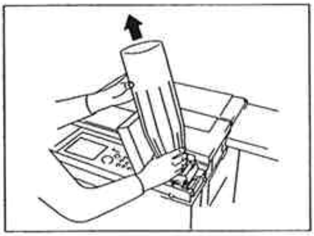


Figure 1-523

11) Close the hopper cover.

D. Hadling the Toner Bottle

Instruct the user to dispose of any empty toner bottle as nonflammable material.

Caution:
Do NOT throw the toner bottle into fire; it can burst or explode.

VI. ROUTINE WORK BY THE USER

Instruct the user to clean the following once a week without fail.

1) Copyboard Glass
   Wipe it with a moist cloth, and dry wipe it.
2) Copyboard Cover/RDF Feeding Belt
   Wipe it with a cloth moistened with a solution of mild detergent, and dry wipe it.

CHAPTER 2

COPYING PROCESSES

I. IMAGE FORMATION 2-1

II. AUXILIARY PROCESS 2-7

I. IMAGE FORMATION

A. Outline

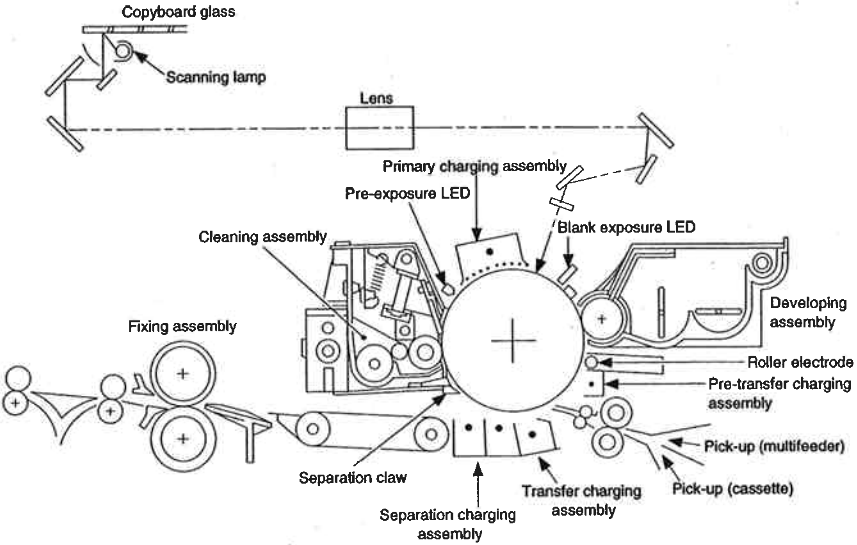

Copyboard glass
Scanning lamp
Lens
Primary charging assembly
Pre-exposure LED
Blank exposure LED
Cleaning assembly
Developing assembly
Fixing assembly
Roller electrode
Pre-transfer charging assembly
Pick-up (multifeeder)
Separation claw
Transfer charging assembly
Pick-up (cassette)
Separation charging assembly

Figure 2-101

The NP6050 uses an electrostatic photographic method to produce images and is constructed as shown in Figure 2-101.

It is equipped with an automatic control mechanism to ensure stable reproduction of high-quality images.

Figure 2-102 gives an outline of the steps taken to produce copies. (The automatic control mechanism will be described later.)

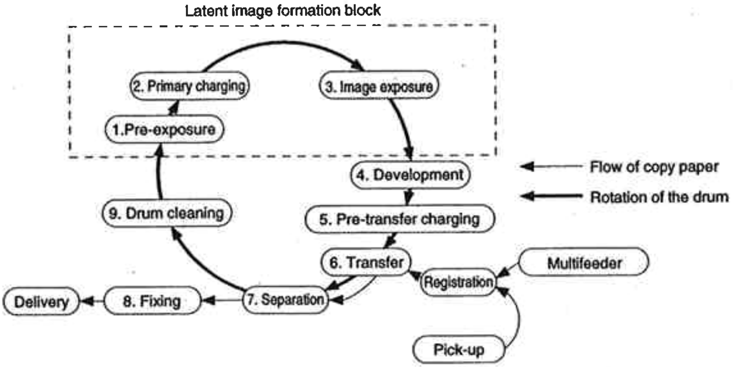

Latent image formation block
2. Primary charging
3. Image exposure
1.Pre-exposure
4. Development
9. Drum cleaning
5. Pre-transfer charging
6. Transfer
Registration
Multifeeder
Delivery
8. Fixing
7. Separation
Pick-up
Flow of copy paper
Rotation of the drum

Figure 2-102

The image formation process consists of the following nine steps:

Step 1	Pre-exposure
Step 2	Primary charging (positive DC)
Step 3	Image exposure
Step 4	Development (AC + positive DC)
Step 5	Pre-transfer charging (AC + negative DC)
Step 6	Transfer (positive DC)
Step 7	Separation (AC + positive DC)
Step 8	Fixing
Step 9	Drum cleaning

The photosensitive drum consists of layers: its outside is a photo-conducting layer made of amorphous silicon and inside, an aluminum substrate.

In general, an amorphous silicon photosensitive medium provides high durability, sensitivity, and resolution. (Take care to wrap the photosensitive drum in five to six sheets of copy paper whenever you have removed it from the copier.)

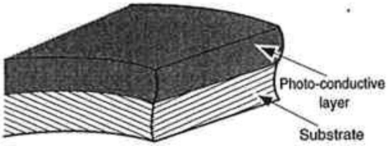


Figure 2-103

B. Latent Image Formation Block

This block consists of three steps, at the end of which positive charges are left in the areas of the photosensitive drum corresponding to the black areas of the original while removing positive charges from the areas of the photosensitive drum corresponding to the white areas of the original.

The surface potential control mechanism is used to ensure a constant potential for the dark and light areas of latent images.

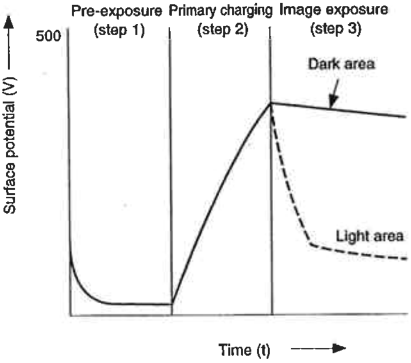


Figure 2-104

C. Pre-Exposure (step 1)

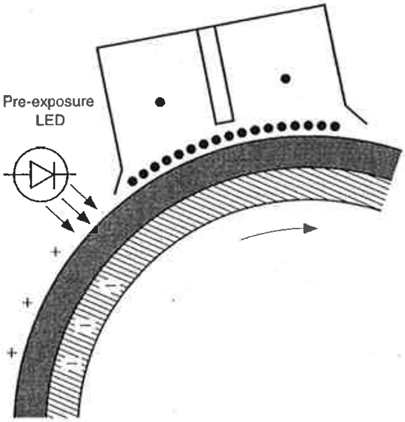


Figure 2-105

The drum is subjected to pre-exposure before primary charging to remove residual charges from the surface, thereby preventing uneven copy density.

D. Primary Charging (step 2)

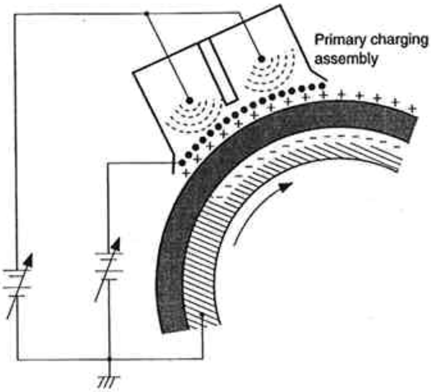

Primary charging assembly

Figure 2-106

The primary charging assembly charges the drum surface to a uniform positive potential by corona charges to ensure primary potential.

The surface potential of the charged drum is determined by the potential (+850 V fixed) of the grid, and the grid is given a bias together with the shield plate so as to ensure a specific drum surface potential.

E. Image Exposure (step 3)

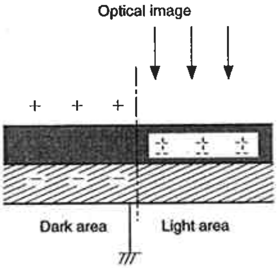

Optical image
Dark area
Light area

Figure 2-107

The optical image of an original is projected to the surface of the drum, thereby neutralizing the charges in the light areas.

F. Development (step 4)

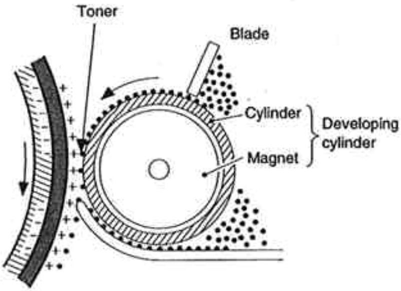

Toner
Blade
Cylinder
Magnet
Developing cylinder

Figure 2-108

As shown in Figure 2-108 the developing assembly consists of a cylinder made up of a fixed magnet and a cylinder that rotates therearound and a magnetic blade.

The developer (toner) is a single-component developer made of magnetite and resin. The toner has insulating characteristics and becomes negatively charged by friction against the rotating cylinder.

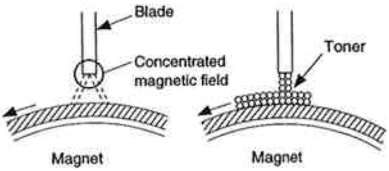

Blade
Concentrated magnetic field
Magnet
Toner
Magnet

Figure 2-109

A concentrated magnetic field occurs at all times from the magnet to the tip of the blade, collecting magnetic toner.

Once inside the concentrated magnetic field, the toner remains virtually immobile because of the strong magnetic bond to the blade.

An even layer of toner is formed on the cylinder by the work of the strong bond to the blade.

AC and DC biases are applied to the developing cylinder and the blade at the same time (referred to as developing bias) and, as a result, the positive component of the developing bias is greater than that of the negative component.

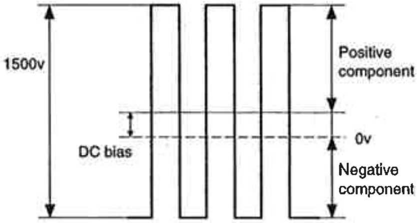


Figure 2-110

Toner is either drawn to or away from the photosensitive drum according to the relative strength of the magnetic field caused by the difference between the drum surface potential and the developing cylinder (i.e., developing bias) and the attraction between the toner and the magnet, thereby turning the latent images into visible images.

G. Pre-Transfer Charging (step 5)

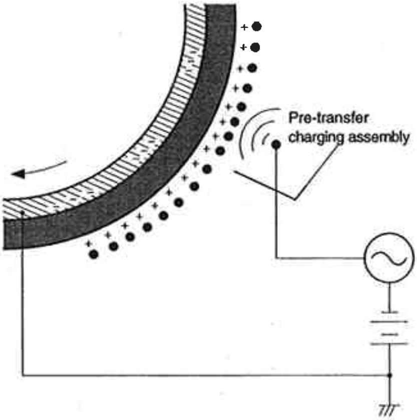


Figure 2-111

AC corona charges combined with a DC bias are applied to the toner on the surface of the drum to increase its charging, thereby increasing the transfer efficiency and, at the same time, facilitating the separation of copy paper.

H. Transfer (step 6)

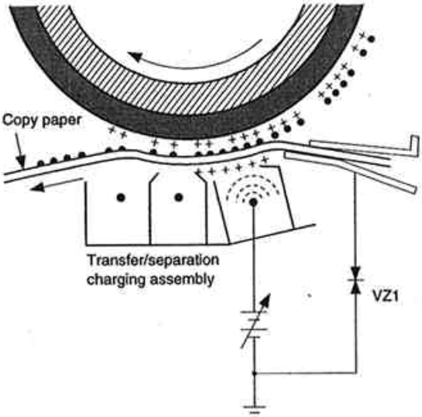


Figure 2-112

Positive corona charges are applied to the back of copy paper to attract (transfer) toner from the surface of the drum.

To prevent transfer faults or soiling of the back of copy paper, the transfer guide is grounded through a varistor (VZ1).

Reference:

If the transfer guide was grounded directly, the charges that should remain on the back of copy paper would escape, causing transfer faults; if not grounded, the transfer guide would be charged excessively and become soiled with toner, in turn soiling the back of copy paper.

I. Separation (step 7)

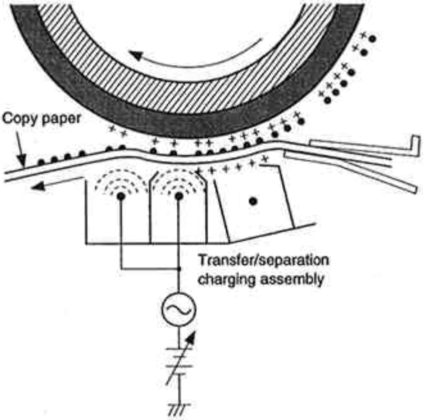


Figure 2-113

Copy paper is charged by the transfer charging assembly to a positive potential and is attracted to the surface of the photosensitive drum by the work of static; in this step, AC corona charges combined with a DC bias are applied to eliminate the static bond between the copy paper and the drum, thereby detaching the copy paper.

An air suction mechanism is used (rubber duct) under the transfer/separation charging assembly rail to ensure proper separation of thin or curled sheets.

J. Fixing (step 8)

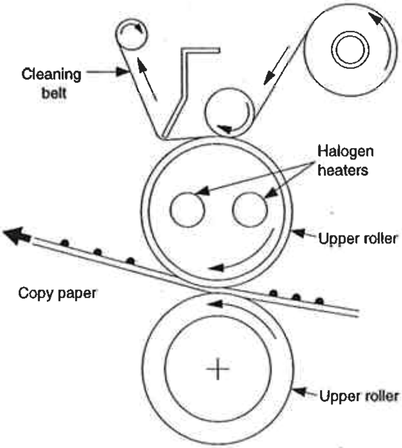

Cleaning belt
Halogen heaters
Upper roller
Copy paper
Upper roller

Figure 2-114

After separation, the copy paper is moved between two heating rollers so that the toner images are fused into the fibers of the paper.

To prevent jamming and toner offset, the upper roller is kept in contact with a cleaning belt impregnated with silicone oil. (The cleaning belt is moved by a take-up mechanism so that its area of contact with the upper cleaning roller shifts for cleaning and oiling.)

Reference:

The number of halogen heaters for use differs depending on the copier configuration: for the 115V model, two heaters (800 W + 400 W) and for the 220/240V model, one heater (1200 W).

K. Drum Cleaning

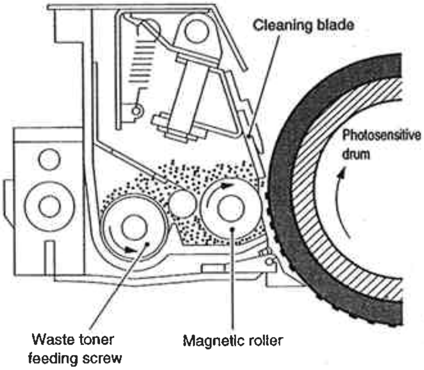

Cleaning blade
Photosensitive drum
Waste toner feeding screw
Magnetic roller

Figure 2-115

To prepare for the next copying run and to clean the surface of the drum so as to ensure sharp images, the toner that may be remaining on the surface of the drum is scraped by the cleaning blade for collection by the magnet roller.

Once collected this way, the toner is forwarded to the rear for collection in the toner case.

To ensure correct contact between the drum and the cleaning blade, thereby preventing cleaning failure, a thin, even coating of toner is deposited on the surface of the drum by a magnetic brush attached to the magnet roller.

II. AUXILIARY PROCESS

A. Roller Electrode

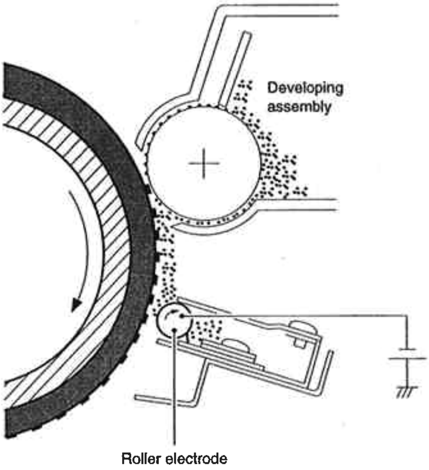


Figure 2-201

A DC bias (positive component) is applied to the roller electrode to collect excess toner that failed to deposit on the surface of the drum to the roller electrode, thereby limiting possible soiling of the pre-transfer charging assembly, transfer charging assembly, and the like.

B. Separation Claw

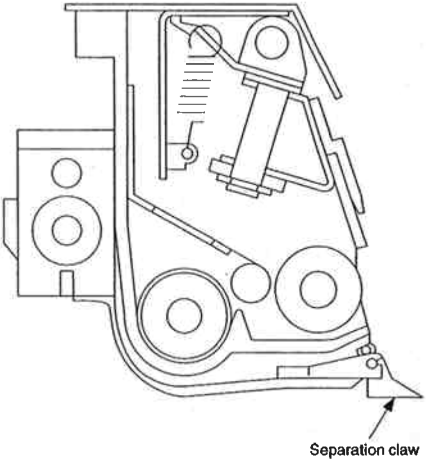


Figure 2-202

A pre-transfer charging fault, separation charging fault, or copy paper feeding fault can affect separation of copy paper from the photosensitive drum, allowing the copy paper to move into the cleaning assembly.

To prevent such a problem, two separation claws are located at the bottom of the cleaning assembly. (The claws serve to force off any copy paper that failed to separate from the photosensitive drum.)

C. Blank Exposure Lamp

The blank exposure lamp remains ON unless the original is being exposed (scanner moving forward) while the drum is rotating, thereby removing charges from the non-image areas of the surface of the drum to prevent adhesion of toner.

The blank exposure lamp LEDs are turned ON according to the changes occurring in the non-image areas caused by different reproduction ratios and copy paper widths.

D. Ozone Filter

A catalytic filter is located in the exhaust fan assembly to break down the ozone generated by the various charging assemblies, thereby preventing the emission of ozone to the outside of the copier.

E. Static Elimination

Copy paper before delivery retains some charges from transfer immediately before delivery: a grounded line of discharging strings is used at the exist to remove such charges.

CHAPTER 3

OPERATIONS AND TIMING

In outline diagrams, ▣▣▣▣▣ represents mechanical drive paths, and ⟶ indicates electrical signal paths.

Signals in digital circuits are identified as '1' for High and '0' for Low. The voltage of signals, however, depends on the circuit.

Nearly all operations of the product are controlled by a microprocessor; the internal workings of the processor are not relevant to the service person's work and, therefore, are left out of the discussions. By the same token, no repairs are prescribed for the PCBs at the user's premises; for this reason, PCBs are discussed by means of block diagrams rather than circuit diagrams.

For the purpose of explanation, discussions are divided into the following: from sensors to main PCB input ports; from main output ports to loads; and minor control circuits and functions.

I. BASIC OPERATIONS........................ 3-1
II. EXPOSURE SYSTEM........................ 3-34
III. IMAGE FORMATION........................ 3-49
IV. PICK-UP/FEEDING SYSTEM.......... 3-83
V. CONTROL PANEL........................... 3-149
VI. FANS.. 3-152
VII. POWER SUPPLY 3-155
VIII. SERVICE MODE 3-159
IX. SELF DIAGNOSIS........................... 3-251

I. BASIC OPERATIONS

A. Functional Construction

The NP6050 can be roughly divided into four functional blocks: namely, pick-up/feeding system, exposure system, image formation system, and control system.

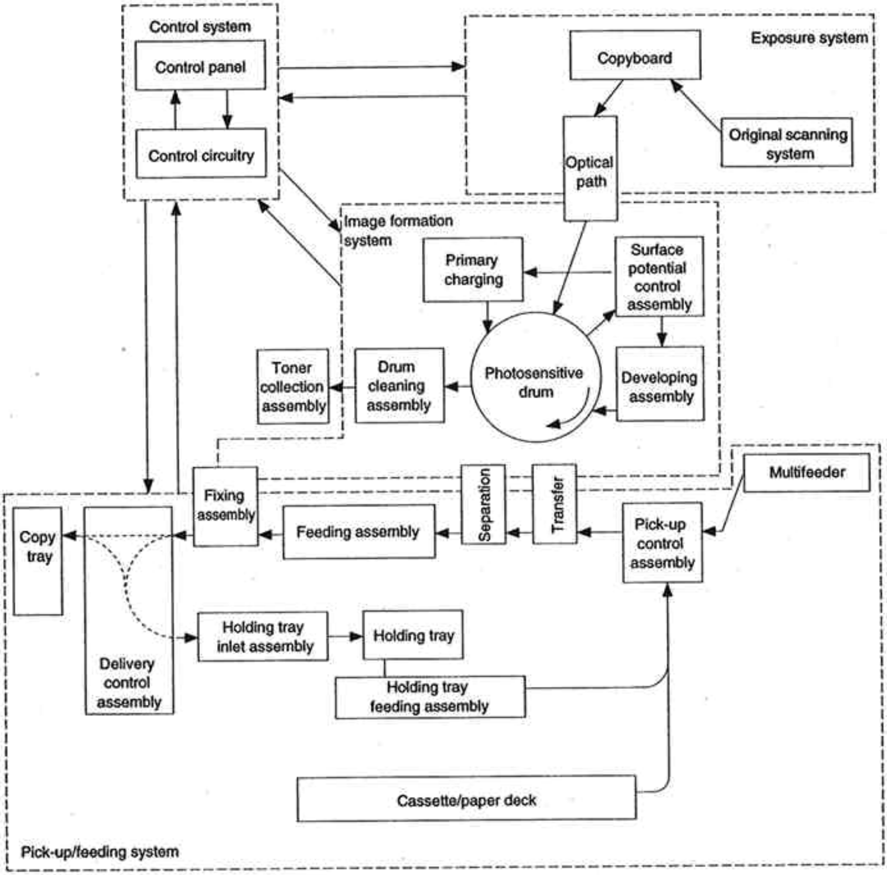

Control system
Control panel
Control circuitry
Exposure system
Copyboard
Optical path
Original scanning system
Image formation system
Primary charging
Surface potential control assembly
Photosensitive drum
Developing assembly
Drum cleaning assembly
Toner collection assembly
Fixing assembly
Separation
Transfer
Multifeeder
Copy tray
Feeding assembly
Pick-up control assembly
Holding tray inlet assembly
Holding tray
Holding tray feeding assembly
Delivery control assembly
Cassette/paper deck
Pick-up/feeding system

Figure 3-101

B. Outline of the Electric Circuitry

The NP6050's major electrical mechanisms are controlled by the microprocessor on the DC controller PCB.

- Copy sequence
- High-voltage
- Fixing temperature
- Scanner drive
- Pick-up/feeding
- Lens motor (X, Y)
- Blank exposure LEDs
- Analog signal input
  Thermistor signal
  Potential sensor signal
  Room temperature signal
  Manual size signal

The control panel is equipped with its own CPU (Q937) which controls its keys, LEDs, and LCD.

The communication with the RDF and the sorter is between the communications IC (IC) on the controller PCB of the option and the communication IC on the NP6050's DC controller PCB.

See Figure 3-102 for a block diagram of the relationships between the major circuits of the NP6050.

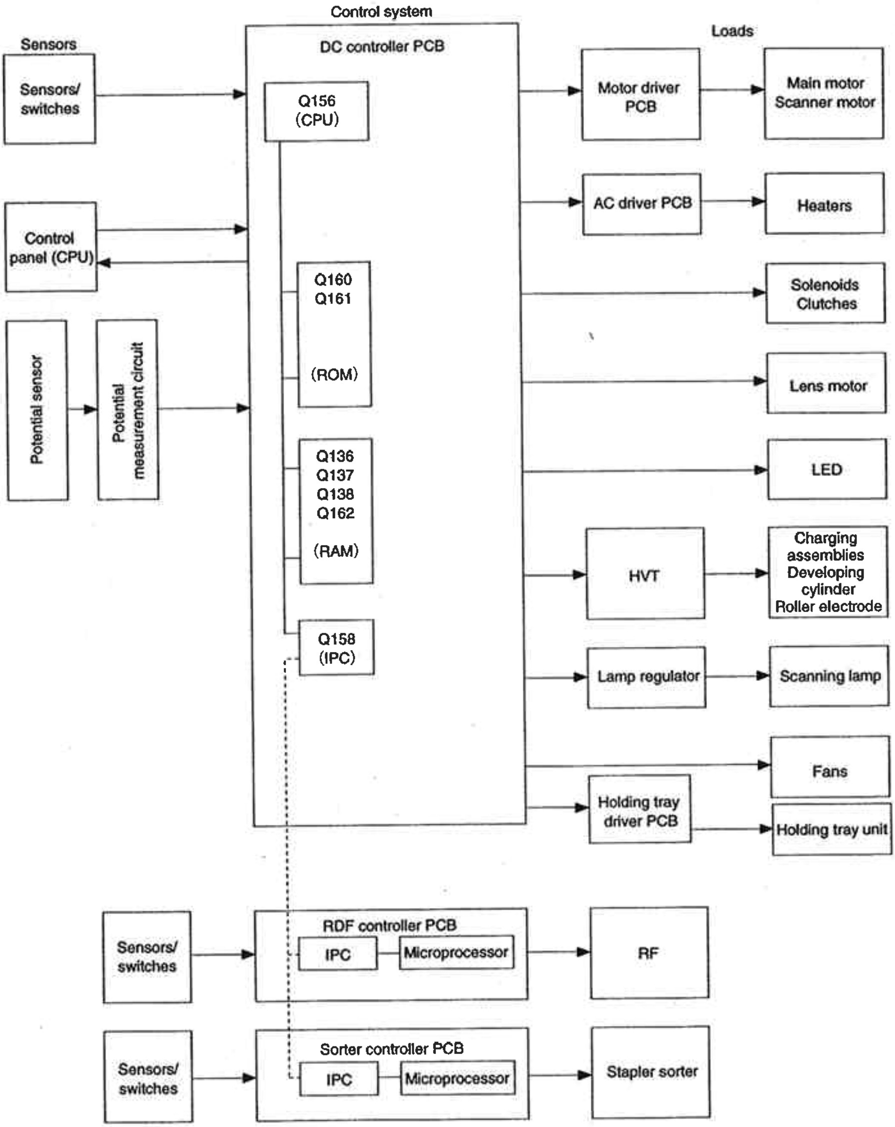
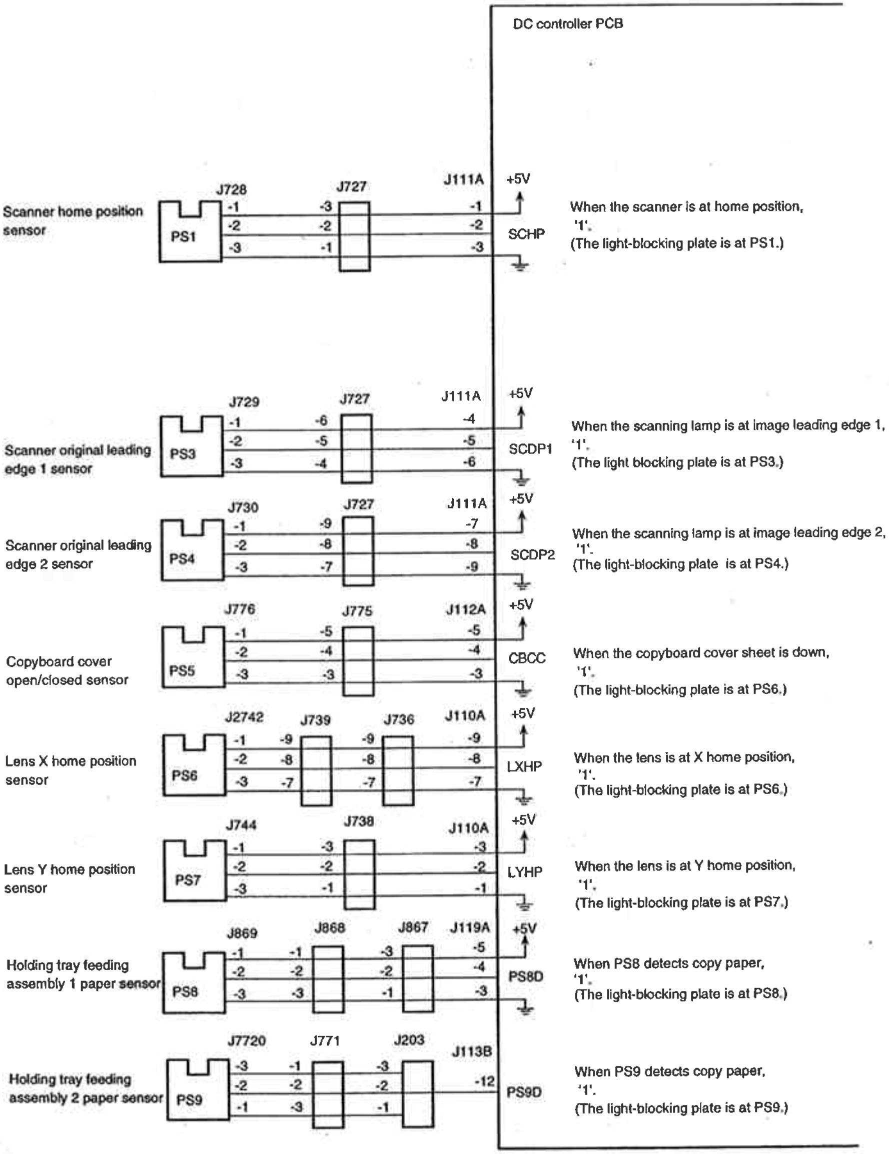

Control system
DC controller PCB
Sensors
Sensors/ switches
Control panel (CPU)
Potential sensor
Potential measurement circuit
Q156 (CPU)
Q160
Q161
(ROM)
Q136
Q137
Q138
Q162
(RAM)
Q158 (IPC)
Loads
Motor driver PCB
Main motor
Scanner motor
AC driver PCB
Heaters
Solenoids
Clutches
Lens motor
LED
HVT
Charging assemblies
Developing cylinder
Roller electrode
Lamp regulator
Scanning lamp
Fans
Holding tray driver PCB
Holding tray unit
Sensors/ switches
RDF controller PCB
IPC
Microprocessor
RF
Sensors/ switches
Sorter controller PCB
IPC
Microprocessor
Stapler sorter

Figure 3-102

C. Inputs to the DC Controller PCB (1/8)


DC controller PCB
Scanner home position sensor
PS1
J728
J727
J111A
+5V
SCHP
Scanner original leading edge 1 sensor
PS3
J729
J727
J111A
+5V
SCDP1
Scanner original leading edge 2 sensor
PS4
J730
J727
J111A
+5V
SCDP2
Copyboard cover open/closed sensor
PS5
J776
J775
J112A
+5V
CBCC
Lens X home position sensor
PS6
J2742
J739
J736
J110A
+5V
LXHP
Lens Y home position sensor
PS7
J744
J738
J110A
+5V
LYHP
Holding tray feeding assembly 1 paper sensor
PS8
J869
J868
J867
J119A
+5V
PS8D
Holding tray feeding assembly 2 paper sensor
PS9
J7720
J771
J203
J113B
-12
PS9D

When the scanner is at home position,
'1'.
(The light-blocking plate is at PS1.)

When the scanning lamp is at image leading edge 1,
'1'.
(The light blocking plate is at PS3.)

When the scanning lamp is at image leading edge 2,
'1'.
(The light-blocking plate is at PS4.)

When the copyboard cover sheet is down,
'1'.
(The light-blocking plate is at PS6.)

When the lens is at X home position,
'1'.
(The light-blocking plate is at PS6.)

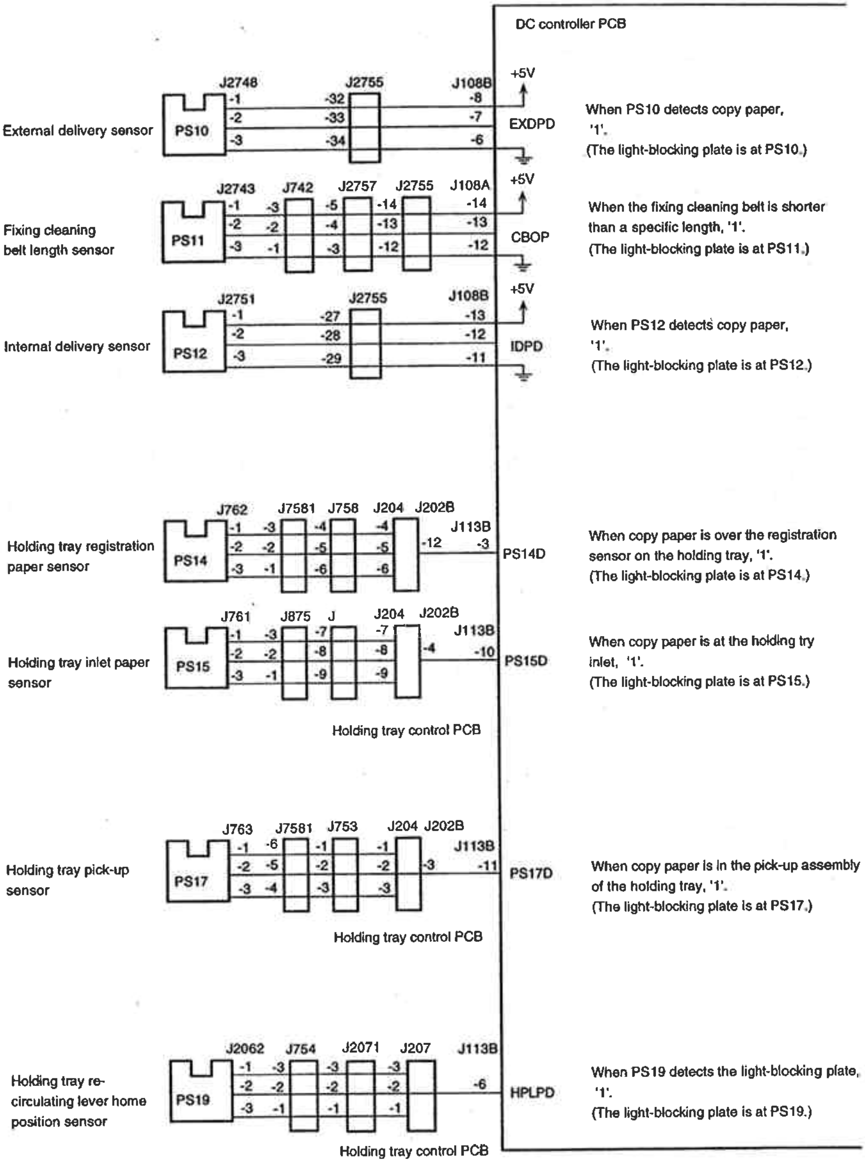
When the lens is at Y home position,
'1'.
(The light-blocking plate is at PS7.)

When PS8 detects copy paper,
'1'.
(The light-blocking plate is at PS8.)

When PS9 detects copy paper,
'1'.
(The light-blocking plate is at PS9.)

Figure 3-103

Inputs to the DC Controller PCB (2/8)


DC controller PCB
External delivery sensor
PS10
J2748
J2755
J108B
+5V
EXDPD
Fixing cleaning belt length sensor
PS11
J2743
J742
J2757
J2755
J108A
+5V
CBOP
Internal delivery sensor
PS12
J2751
J2755
J108B
+5V
IDPD
Holding tray registration paper sensor
PS14
J762
J7581
J758
J204
J202B
J113B
PS14D
Holding tray inlet paper sensor
PS15
J761
J875
J
J204
J202B
J113B
PS15D
Holding tray control PCB
Holding tray pick-up sensor
PS17
J763
J7581
J753
J204
J202B
J113B
PS17D
Holding tray control PCB
Holding tray re-circulating lever home position sensor
PS19
J2062
J754
J2071
J207
J113B
HPLPD
Holding tray control PCB

When PS10 detects copy paper, '1'.
(The light-blocking plate is at PS10.)

When the fixing cleaning belt is shorter than a specific length, '1'.
(The light-blocking plate is at PS11.)

When PS12 detects copy paper, '1'.
(The light-blocking plate is at PS12.)

When copy paper is over the registration sensor on the holding tray, '1'.
(The light-blocking plate is at PS14.)

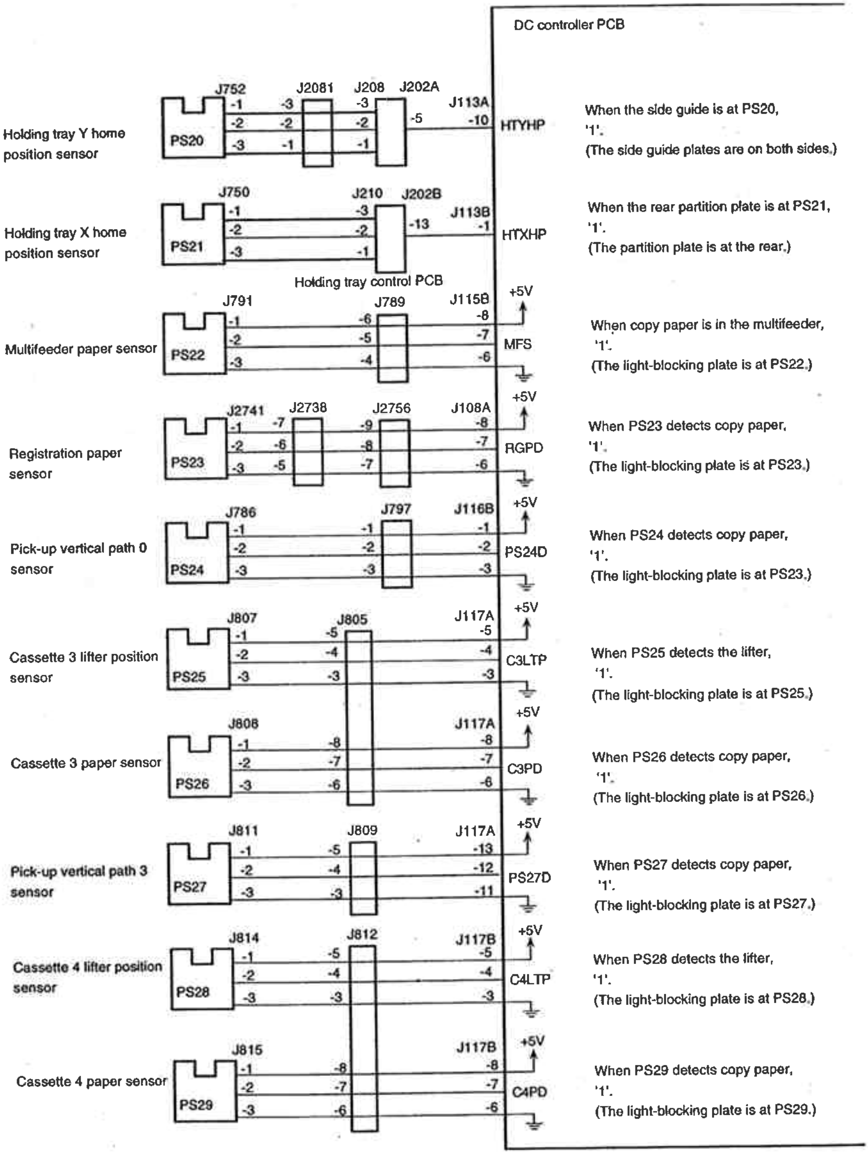
When copy paper is at the holding try inlet, '1'.
(The light-blocking plate is at PS15.)

When copy paper is in the pick-up assembly of the holding tray, '1'.
(The light-blocking plate is at PS17.)

When PS19 detects the light-blocking plate, '1'.
(The light-blocking plate is at PS19.)

Figure 3-104

Inputs to the DC Controller PCB (3/8)


DC controller PCB
Holding tray Y home position sensor
PS20
J752
J2081
J208
J202A
J113A
-10
HTYHP
Holding tray X home position sensor
PS21
J750
J210
J202B
J113B
-13
HTXHP
Holding tray control PCB
Multifeeder paper sensor
PS22
J791
J789
J115B
+5V
MFS
Registration paper sensor
PS23
J2741
J2738
J2756
J108A
RGPD
Pick-up vertical path 0 sensor
PS24
J786
J797
J116B
PS24D
Cassette 3 lifter position sensor
PS25
J807
J805
J117A
C3LTP
Cassette 3 paper sensor
PS26
J808
C3PD
Pick-up vertical path 3 sensor
PS27
J811
J809
PS27D
Cassette 4 lifter position sensor
PS28
J814
J812
J117B
C4LTP
Cassette 4 paper sensor
PS29
J815
C4PD

When the side guide is at PS20, '1'.
(The side guide plates are on both sides.)

When the rear partition plate is at PS21, '1'.
(The partition plate is at the rear.)

When copy paper is in the multifeeder, '1'.
(The light-blocking plate is at PS22.)

When PS23 detects copy paper, '1'.
(The light-blocking plate is at PS23.)

When PS24 detects copy paper, '1'.
(The light-blocking plate is at PS23.)

When PS25 detects the lifter, '1'.
(The light-blocking plate is at PS25.)

When PS26 detects copy paper, '1'.
(The light-blocking plate is at PS26.)

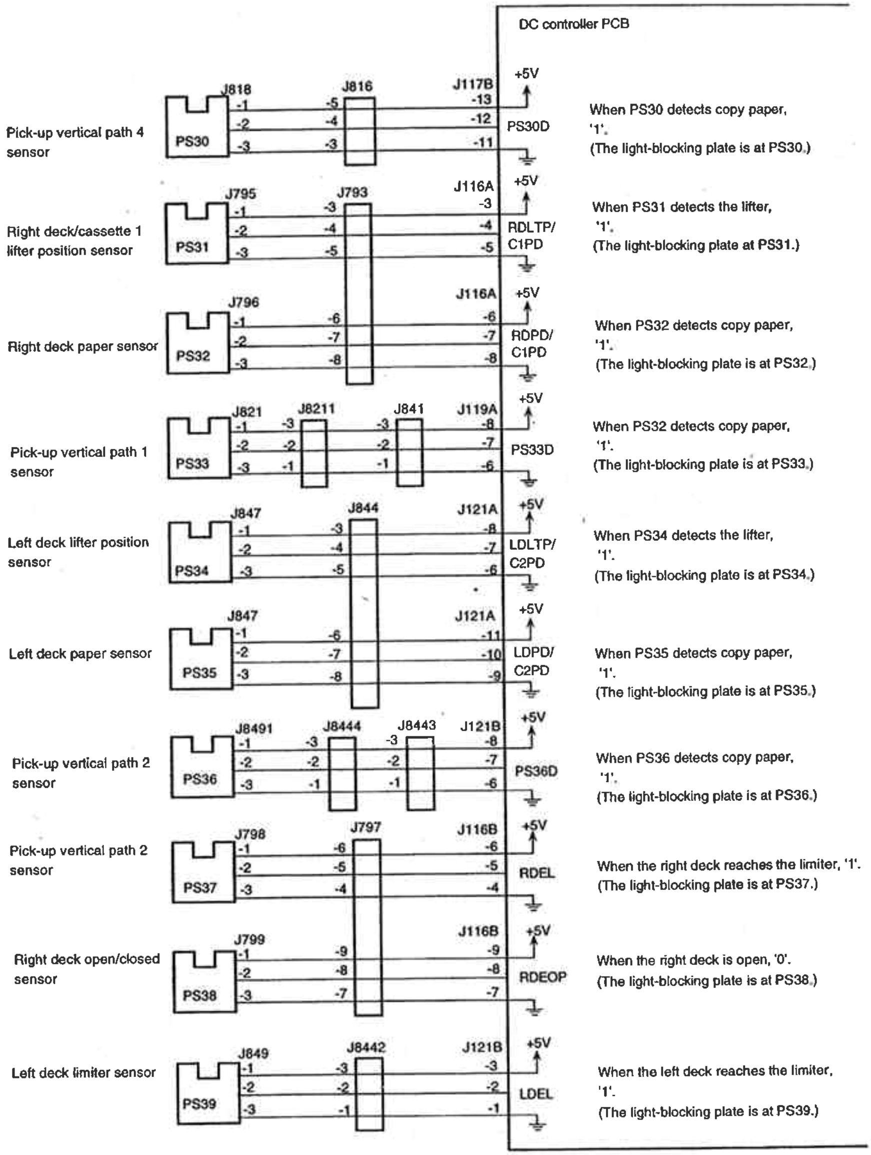
When PS27 detects copy paper, '1'.
(The light-blocking plate is at PS27.)

When PS28 detects the lifter, '1'.
(The light-blocking plate is at PS28.)

When PS29 detects copy paper, '1'.
(The light-blocking plate is at PS29.)

Figure 3-105

Inputs to the DC Controller PCB (4/8)


DC controller PCB
Pick-up vertical path 4 sensor
PS30
J818 -1 -2 -3
J816 -5 -4 -3
J117B -13 -12 -11
+5V
PS30D
Right deck/cassette 1 lifter position sensor
PS31
J795 -1 -2 -3
J793 -3 -4 -5
J116A -3 -4 -5
+5V
RDLTP/ C1PD
Right deck paper sensor
PS32
J796 -1 -2 -3
-6 -7 -8
J116A -6 -7 -8
+5V
RDPD/ C1PD
Pick-up vertical path 1 sensor
PS33
J821 -1 -2 -3
J8211 -3 -2 -1
J841 -3 -2 -1
J119A -8 -7 -6
+5V
PS33D
Left deck lifter position sensor
PS34
J847 -1 -2 -3
J844 -3 -4 -5
J121A -8 -7 -6
+5V
LDLTP/ C2PD
Left deck paper sensor
PS35
J847 -1 -2 -3
-6 -7 -8
J121A -11 -10 -9
+5V
LDPD/ C2PD
Pick-up vertical path 2 sensor
PS36
J8491 -1 -2 -3
J8444 -3 -2 -1
J8443 -3 -2 -1
J121B -8 -7 -6
+5V
PS36D
Pick-up vertical path 2 sensor
PS37
J798 -1 -2 -3
J797 -6 -5 -4
J116B -6 -5 -4
+5V
RDEL
Right deck open/closed sensor
PS38
J799 -1 -2 -3
-9 -8 -7
J116B -9 -8 -7
+5V
RDEOP
Left deck limiter sensor
PS39
J849 -1 -2 -3
J8442 -3 -2 -1
J121B -3 -2 -1
+5V
LDEL

When PS30 detects copy paper, '1'. (The light-blocking plate is at PS30.)

When PS31 detects the lifter, '1'. (The light-blocking plate at PS31.)

When PS32 detects copy paper, '1'. (The light-blocking plate is at PS32.)

When PS32 detects copy paper, '1'. (The light-blocking plate is at PS33.)

When PS34 detects the lifter, '1'. (The light-blocking plate is at PS34.)

When PS35 detects copy paper, '1'. (The light-blocking plate is at PS35.)

When PS36 detects copy paper, '1'. (The light-blocking plate is at PS36.)

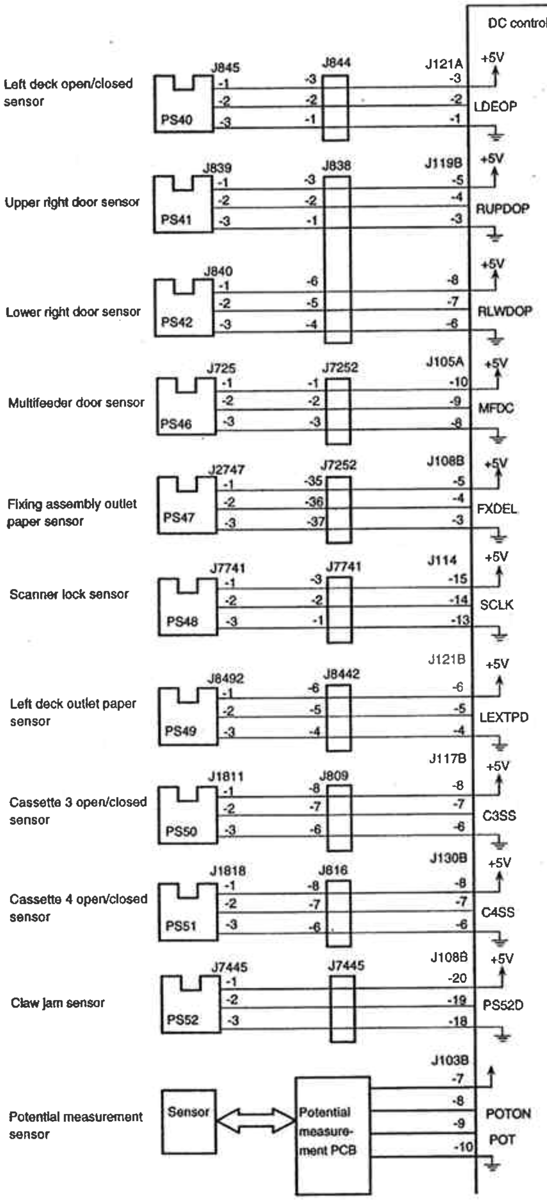
When the right deck reaches the limiter, '1'. (The light-blocking plate is at PS37.)

When the right deck is open, '0'. (The light-blocking plate is at PS38.)

When the left deck reaches the limiter, '1'. (The light-blocking plate is at PS39.)

Figure 3-1-6

Inputs to the DC Controller PCB (5/8)


DC controller PCB
Left deck open/closed sensor
PS40
J845
J844
J121A
+5V
LDEOP
Upper right door sensor
PS41
J839
J838
J119B
RUPDOP
Lower right door sensor
PS42
J840
RLWDOP
Multifeeder door sensor
PS46
J725
J7252
J105A
MFDC
Fixing assembly outlet paper sensor
PS47
J2747
J7252
J108B
FXDEL
Scanner lock sensor
PS48
J7741
J7741
J114
SCLK
Left deck outlet paper sensor
PS49
J8492
J8442
J121B
LEXTPD
Cassette 3 open/closed sensor
PS50
J1811
J809
J117B
C3SS
Cassette 4 open/closed sensor
PS51
J1818
J816
J130B
C4SS
Claw jam sensor
PS52
J7445
J7445
J108B
PS52D
Potential measurement sensor
Sensor
Potential measure-ment PCB
J103B
POTON
POT

When the left deck is open, '1'.
(The light-blocking plate is at PS40.)

When the right door (upper) is open, '0'.
(The light-blocking plate is at PS41.)

When the right door (lower) is open, '0'.
(The light-blocking plate is at PS42.)

When the multifeeder door is closed, '1'.
(The light-blocking plate is at PS46.)

When paper is at the fixing assembly outlet, '1'.
(Copy paper is at PS47.)

When the scanner locking solenoid (SL1) turns ON, '1'.
(The light-blocking plate is at PS48.)

When paper is at the pick-up outlet of the left deck, '1'.
(Copy paper is at PS49.)

When the grip of the cassette 3 is held, '1'.

When the grip of the cassette 4 is held, '1'.

When paper is over the sensor, '1'.
(The light-blocking plate is at PS52.)

See p. 3-52.

Figure 3-107

Inputs to the DC Controller PCB (6/8)

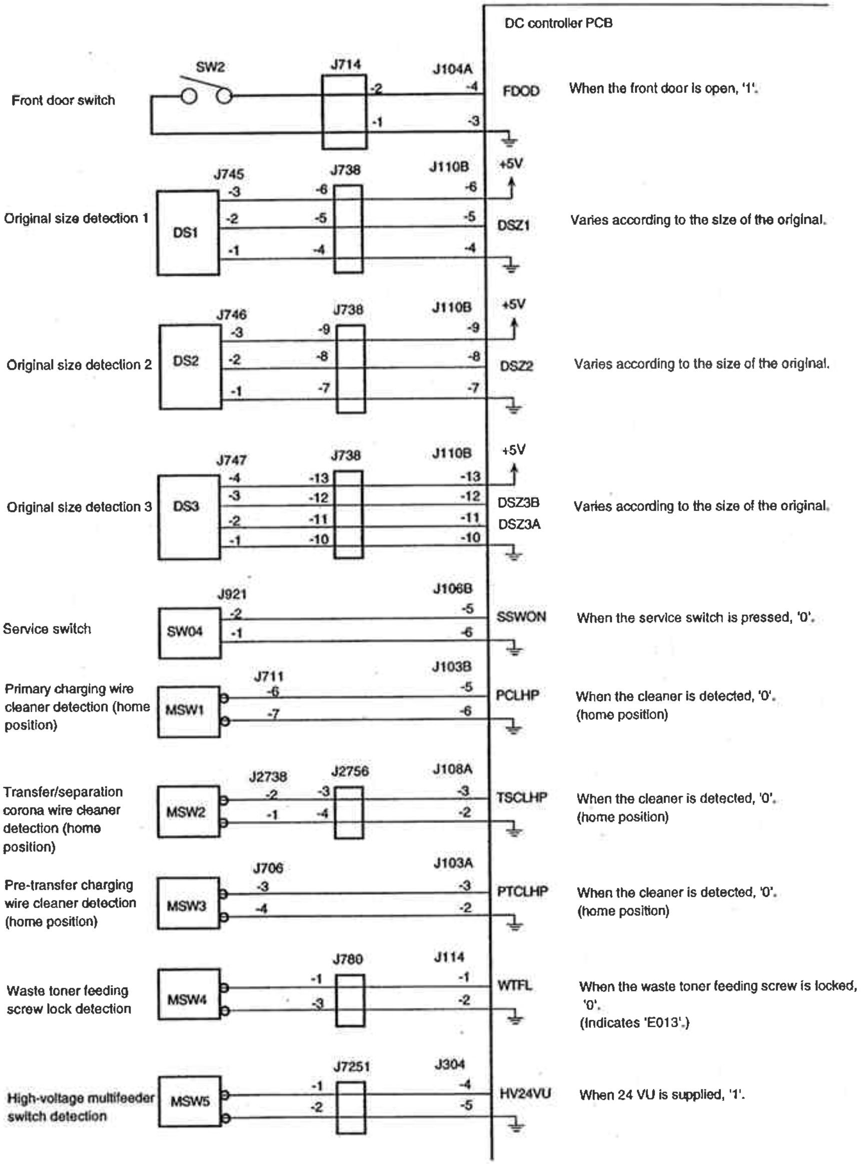

DC controller PCB
Front door switch
SW2
J714
-2
-1
J104A
-4
-3
FDOD
When the front door is open, '1'.
Original size detection 1
DS1
J745
-3
-2
-1
J738
-6
-5
-4
J110B
-6
-5
-4
+5V
DSZ1
Varies according to the size of the original.
Original size detection 2
DS2
J746
-3
-2
-1
J738
-9
-8
-7
J110B
-9
-8
-7
+5V
DSZ2
Varies according to the size of the original.
Original size detection 3
DS3
J747
-4
-3
-2
-1
J738
-13
-12
-11
-10
J110B
-13
-12
-11
-10
+5V
DSZ3B
DSZ3A
Varies according to the size of the original.
Service switch
SW04
J921
-2
-1
J106B
-5
-6
SSWON
When the service switch is pressed, '0'.
Primary charging wire cleaner detection (home position)
MSW1
J711
-6
-7
J103B
-5
-6
PCLHP
When the cleaner is detected, '0'. (home position)
Transfer/separation corona wire cleaner detection (home position)
MSW2
J2738
-2
-1
J2756
-3
-4
J108A
-3
-2
TSCLHP
When the cleaner is detected, '0'. (home position)
Pre-transfer charging wire cleaner detection (home position)
MSW3
J706
-3
-4
J103A
-3
-2
PTCLHP
When the cleaner is detected, '0'. (home position)
Waste toner feeding screw lock detection
MSW4
J780
-1
-3
J114
-1
-2
WTFL
When the waste toner feeding screw is locked, '0'. (Indicates 'E013'.)
High-voltage multifeeder switch detection
MSW5
J7251
-1
-2
J304
-4
-5
HV24VU
When 24 VU is supplied, '1'.

Figure 3-108

Inputs to the DC Controller PCB (7/8)

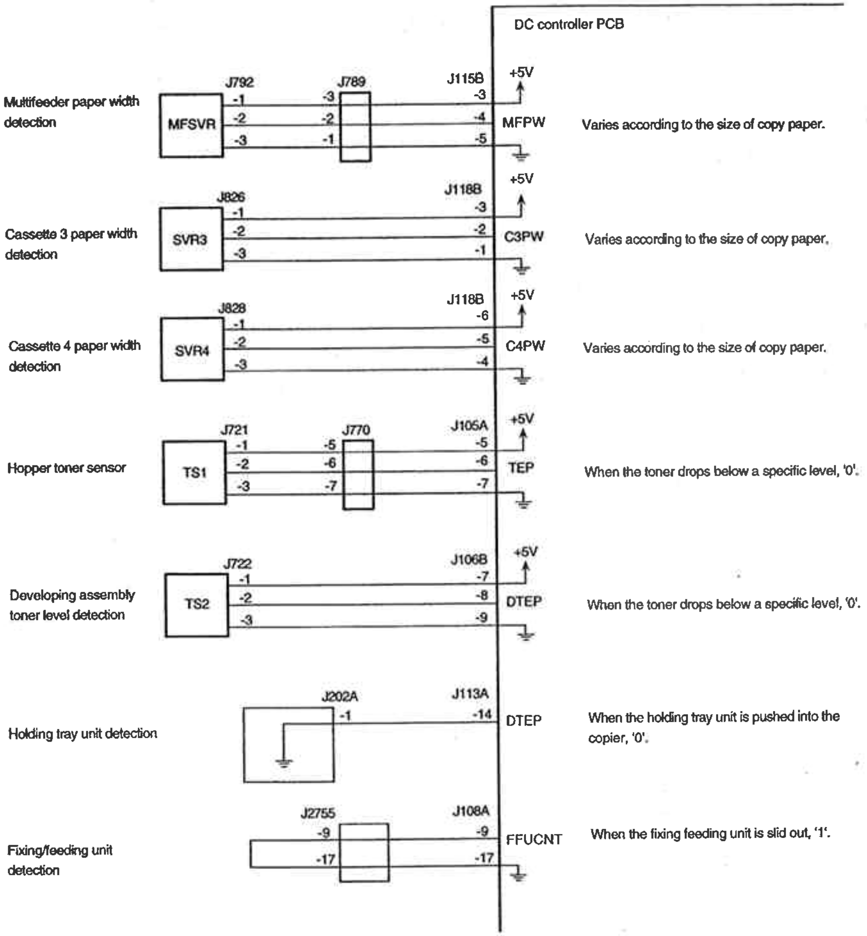

DC controller PCB
Multifeeder paper width detection
MFSVR
J792
-1
-2
-3
J789
-3
-2
-1
J115B
-3
-4
-5
+5V
MFPW
Varies according to the size of copy paper.
Cassette 3 paper width detection
SVR3
J826
-1
-2
-3
J118B
-3
-2
-1
+5V
C3PW
Varies according to the size of copy paper.
Cassette 4 paper width detection
SVR4
J828
-1
-2
-3
J118B
-6
-5
-4
+5V
C4PW
Varies according to the size of copy paper.
Hopper toner sensor
TS1
J721
-1
-2
-3
J770
-5
-6
-7
J105A
-5
-6
-7
+5V
TEP
When the toner drops below a specific level, '0'.
Developing assembly toner level detection
TS2
J722
-1
-2
-3
J106B
-7
-8
-9
+5V
DTEP
When the toner drops below a specific level, '0'.
Holding tray unit detection
J202A
-1
J113A
-14
DTEP
When the holding tray unit is pushed into the copier, '0'.
Fixing/feeding unit detection
J2755
-9
-17
J108A
-9
-17
FFUCNT
When the fixing feeding unit is slid out, '1'.

Figure 3-109

Inputs to the DC Controller PCB (8/8)

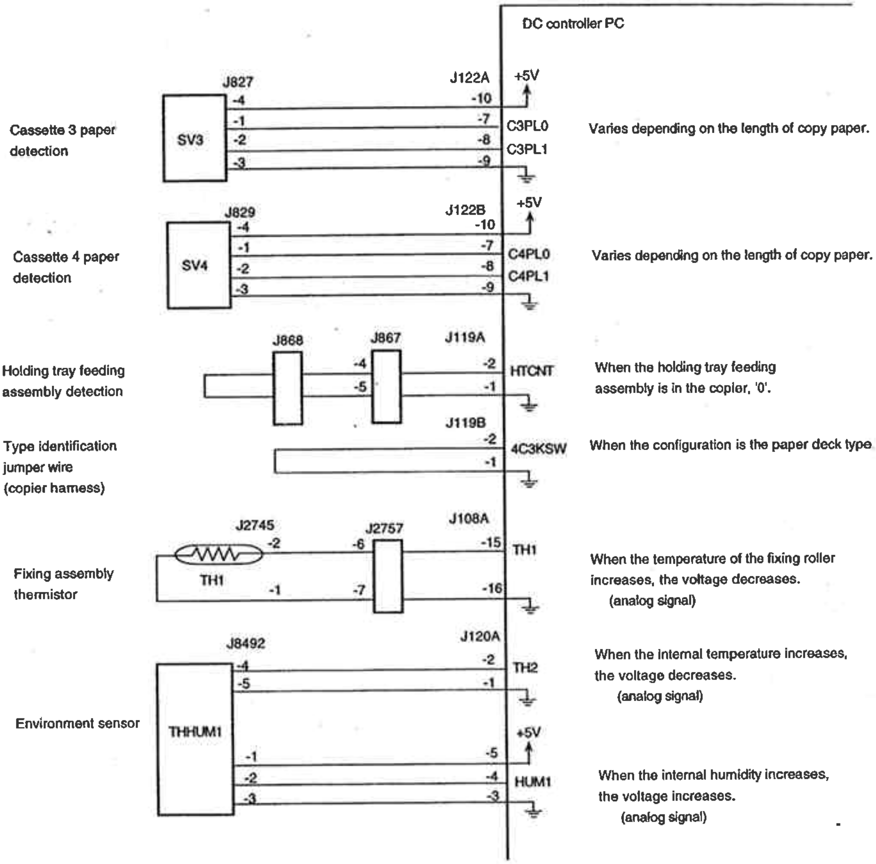

DC controller PC
Cassette 3 paper detection
SV3
J827
-4
-1
-2
-3
J122A
-10
-7
-8
-9
+5V
C3PL0
C3PL1
Varies depending on the length of copy paper.
Cassette 4 paper detection
SV4
J829
-4
-1
-2
-3
J122B
-10
-7
-8
-9
+5V
C4PL0
C4PL1
Varies depending on the length of copy paper.
Holding tray feeding assembly detection
J868
J867
-4
-5
J119A
-2
-1
HTCNT
When the holding tray feeding assembly is in the copier, '0'.
Type identification jumper wire (copier harness)
J119B
-2
-1
4C3KSW
When the configuration is the paper deck type
Fixing assembly thermistor
J2745
-2
-1
TH1
J2757
-6
-7
J108A
-15
-16
TH1
When the temperature of the fixing roller increases, the voltage decreases. (analog signal)
Environment sensor
THHUM1
J8492
-4
-5
-1
-2
-3
J120A
-2
-1
TH2
When the internal temperature increases, the voltage decreases. (analog signal)
-5
-4
-3
+5V
HUM1
When the internal humidity increases, the voltage increases. (analog signal)

Figure 3-110

D. Outputs from the DC Controller (1/11) (115V model)

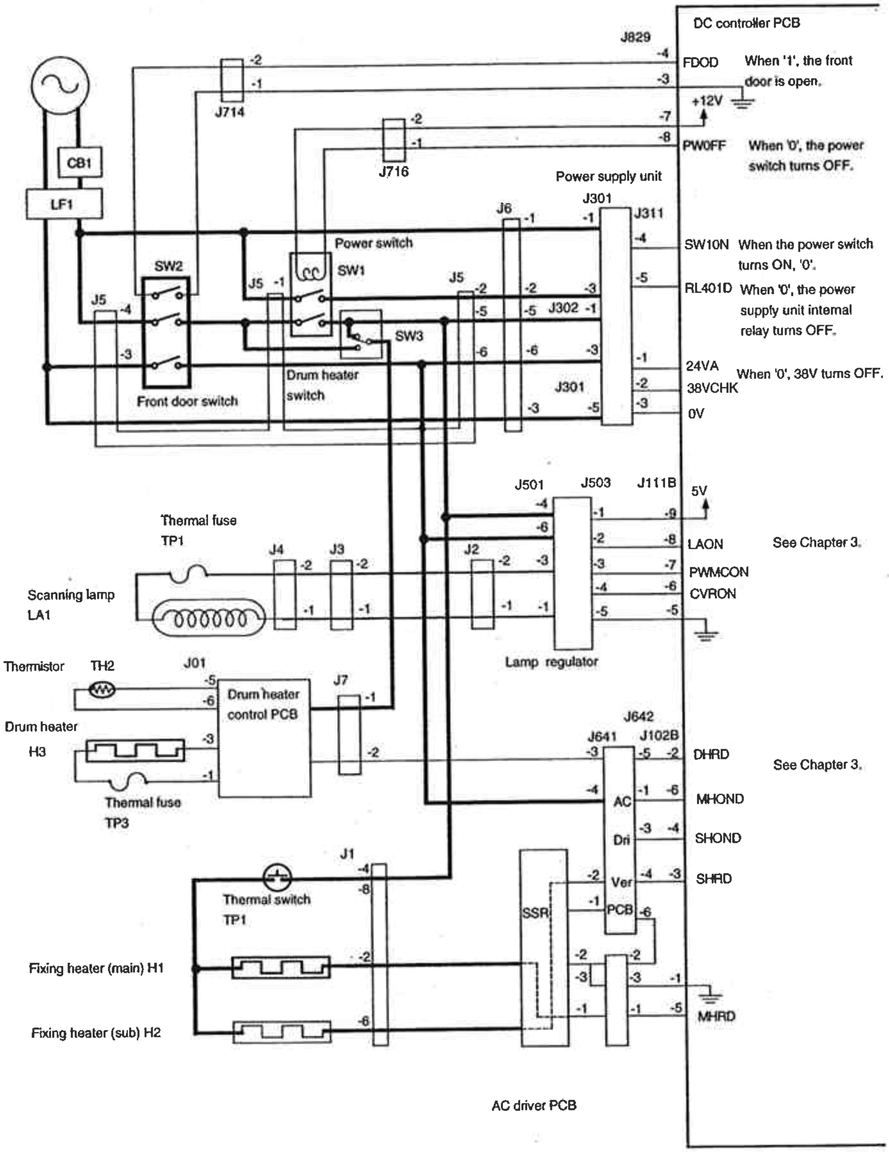

DC controller PCB
J829
-4
FDOD
When '1', the front door is open.
-3
+12V
-7
-8
PWOFF
When '0', the power switch turns OFF.
J714
-2
-1
J716
-2
-1
CB1
LF1
Power supply unit
J301
J311
J6
-1
-4
SW10N
When the power switch turns ON, '0'.
Power switch
SW1
SW2
J5
-5
RL401D
When '0', the power supply unit internal relay turns OFF.
J302
SW3
-6
-3
-1
24VA
38VCHK
When '0', 38V turns OFF.
-2
-3
0V
Drum heater switch
Front door switch
J301
J501
J503
J111B
5V
-9
-8
LAON
See Chapter 3.
-7
PWMCON
-6
CVRON
-5
Thermal fuse
TP1
J4
J3
J2
Scanning lamp
LA1
Lamp regulator
Thermistor
TH2
J01
J7
Drum heater control PCB
Drum heater
H3
Thermal fuse
TP3
J642
J641
J102B
DHRD
See Chapter 3.
AC
Dri
Ver
PCB
MHOND
SHOND
SHRD
J1
Thermal switch
TP1
SSR
Fixing heater (main) H1
Fixing heater (sub) H2
MHRD
AC driver PCB

Figure 3-111a

Outputs from the DC Controller (1/11) (220/240V model)

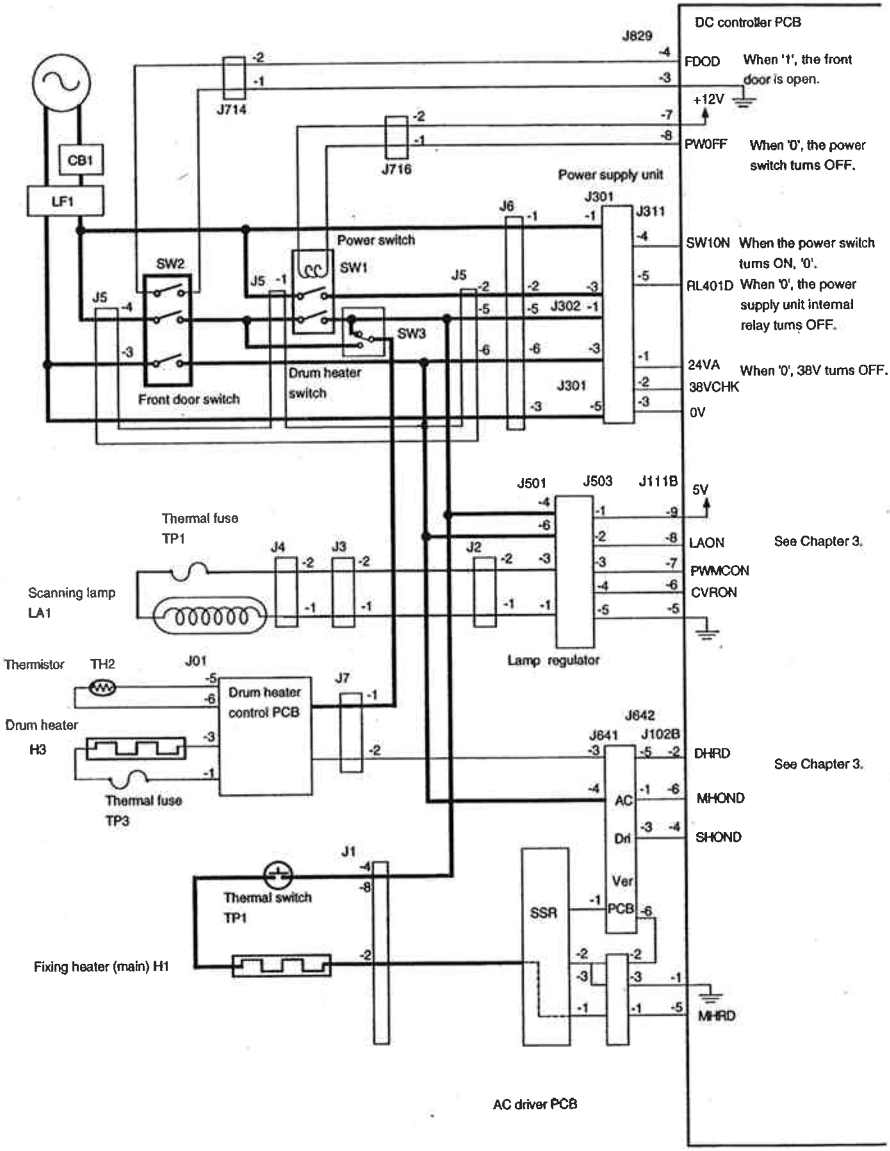

DC controller PCB
J829
-4
-3
FDOD
When '1', the front door is open.
+12V
-7
-8
PWOFF
When '0', the power switch turns OFF.
J714
-2
-1
J716
CB1
LF1
Power supply unit
J301
J311
J6
Power switch
SW1
SW2
J5
SW3
SW1ON
When the power switch turns ON, '0'.
RL401D
When '0', the power supply unit internal relay turns OFF.
J302
24VA
38VCHK
0V
When '0', 38V turns OFF.
Front door switch
Drum heater switch
J501
J503
J111B
5V
LAON
PWMCON
CVRON
See Chapter 3.
Thermal fuse
TP1
Scanning lamp
LA1
J4
J3
J2
Lamp regulator
Thermistor
TH2
J01
Drum heater control PCB
J7
Drum heater
H3
Thermal fuse
TP3
J642
J641
J102B
DHRD
MHOND
SHOND
See Chapter 3.
AC Dri Ver PCB
J1
Thermal switch
TP1
SSR
Fixing heater (main) H1
MHRD
AC driver PCB

Figure 3-111b

Outputs from the DC Controller PCB (2/11)

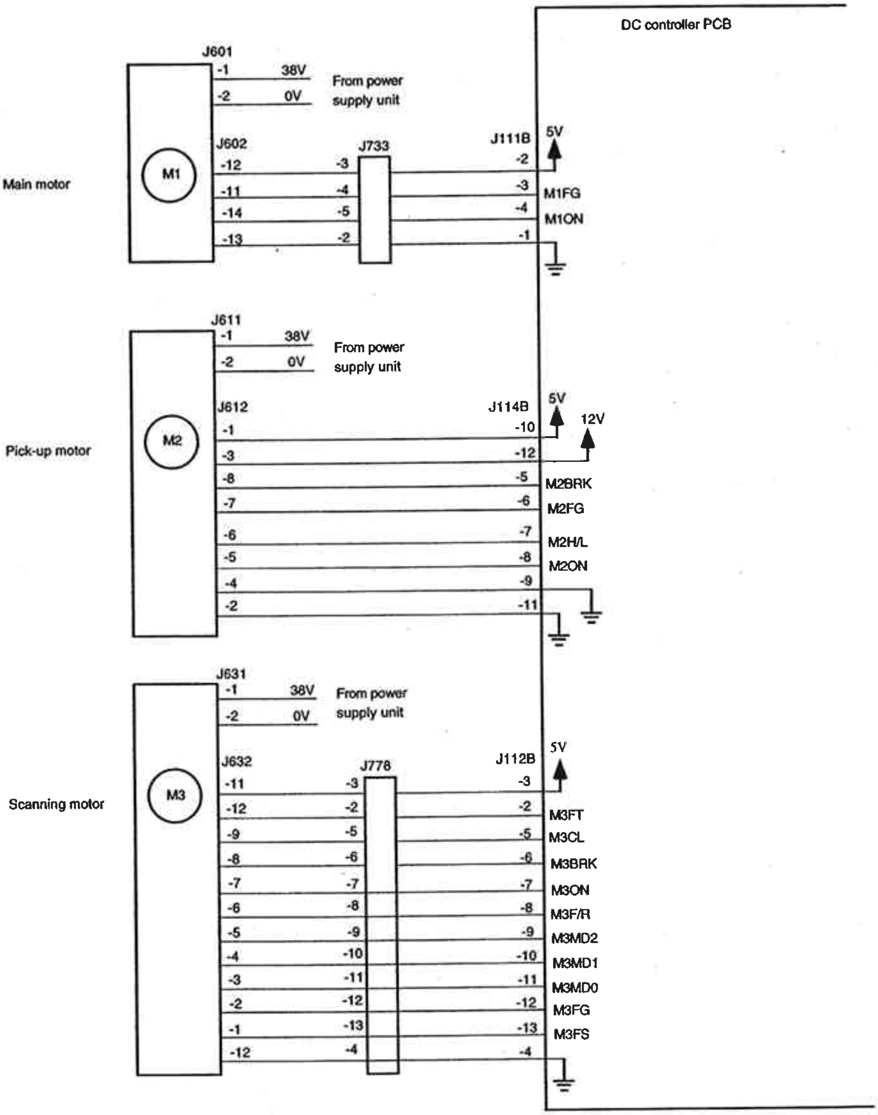

DC controller PCB
Main motor
M1
J601
-1
38V
-2
0V
From power supply unit
J602
-12
-11
-14
-13
J733
-3
-4
-5
-2
J111B
-2
-3
-4
-1
5V
M1FG
M1ON
Pick-up motor
M2
J611
-1
38V
-2
0V
From power supply unit
J612
-1
-3
-8
-7
-6
-5
-4
-2
J114B
-10
-12
-5
-6
-7
-8
-9
-11
5V
12V
M2BRK
M2FG
M2H/L
M2ON
Scanning motor
M3
J631
-1
38V
-2
0V
From power supply unit
J632
-11
-12
-9
-8
-7
-6
-5
-4
-3
-2
-1
-12
J778
-3
-2
-5
-6
-7
-8
-9
-10
-11
-12
-13
-4
J112B
-3
-2
-5
-6
-7
-8
-9
-10
-11
-12
-13
-4
5V
M3FT
M3CL
M3BRK
M3ON
M3F/R
M3MD2
M3MD1
M3MD0
M3FG
M3FS

Figure 3-112

Outputs from the DC Controller (3/11)

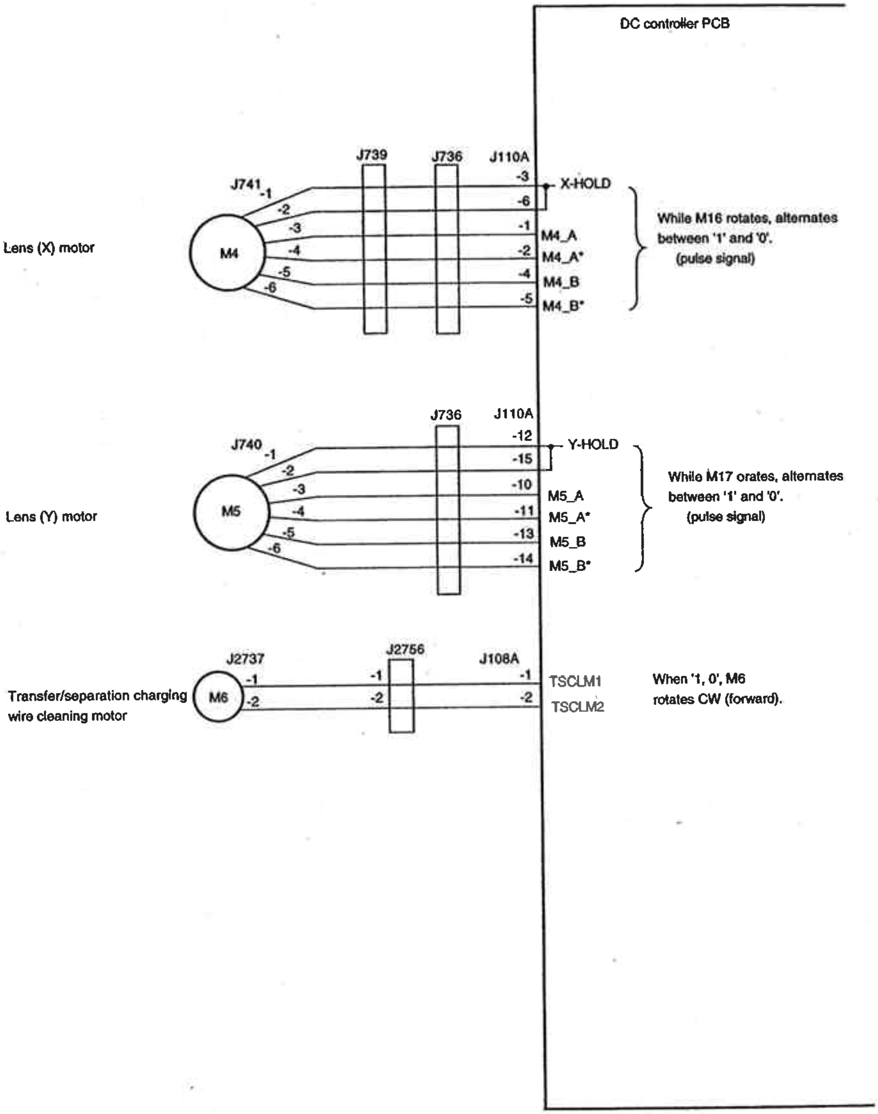

DC controller PCB
J739
J736
J110A
J741
-1
-2
-3
-4
-5
-6
-3
-6
-1
-2
-4
-5
X-HOLD
M4_A
M4_A*
M4_B
M4_B*
Lens (X) motor
M4
While M16 rotates, alternates between '1' and '0'.
(pulse signal)
J736
J110A
J740
-12
-15
-10
-11
-13
-14
Y-HOLD
M5_A
M5_A*
M5_B
M5_B*
Lens (Y) motor
M5
While M17 orates, alternates between '1' and '0'.
(pulse signal)
J2737
J2756
J108A
Transfer/separation charging wire cleaning motor
M6
TSCLM1
TSCLM2
When '1, 0', M6 rotates CW (forward).

Figure 3-113

Outputs from the DC Controller (4/11)

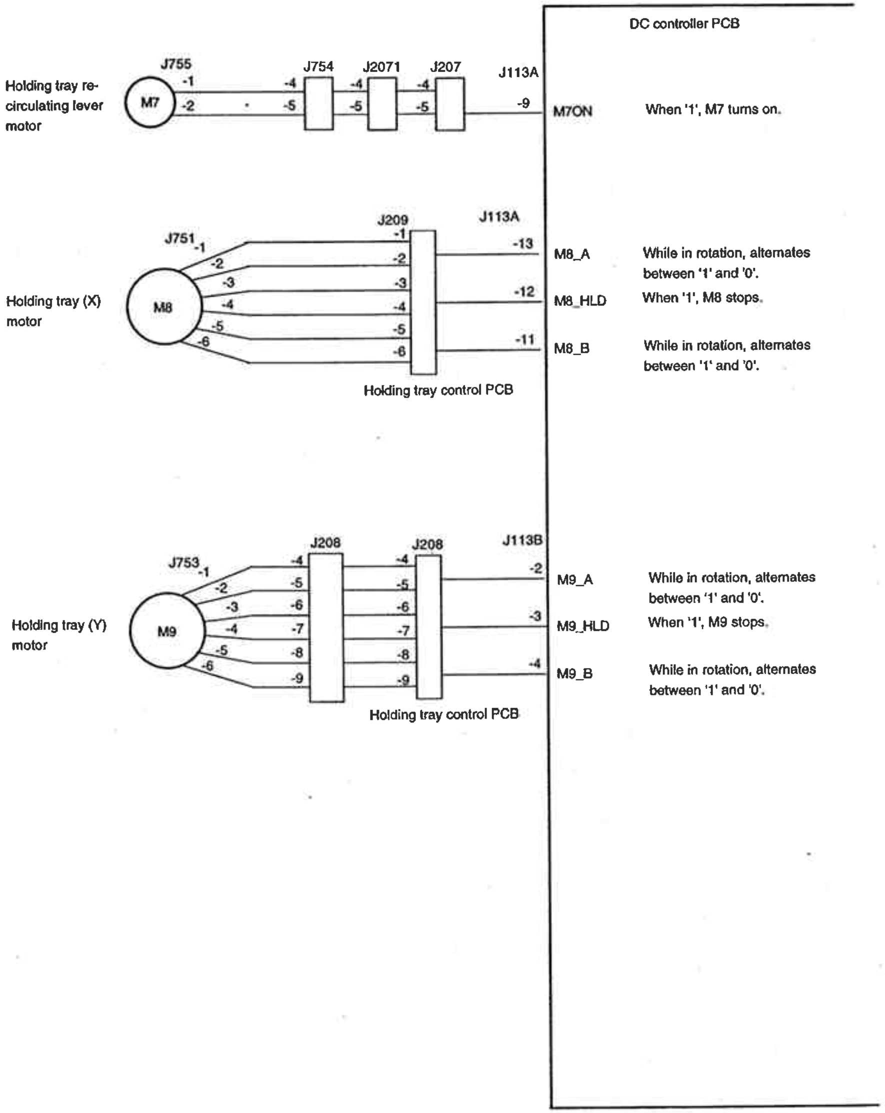

DC controller PCB
Holding tray re-circulating lever motor
M7
J755
-1
-2
J754
-4
-5
J2071
-4
-5
J207
-4
-5
J113A
-9
M7ON
When '1', M7 turns on.
Holding tray (X) motor
M8
J751
-1
-2
-3
-4
-5
-6
J209
-1
-2
-3
-4
-5
-6
J113A
-13
-12
-11
M8_A
While in rotation, alternates between '1' and '0'.
M8_HLD
When '1', M8 stops.
M8_B
While in rotation, alternates between '1' and '0'.
Holding tray control PCB
Holding tray (Y) motor
M9
J753
-1
-2
-3
-4
-5
-6
J208
-4
-5
-6
-7
-8
-9
J208
-4
-5
-6
-7
-8
-9
J113B
-2
-3
-4
M9_A
While in rotation, alternates between '1' and '0'.
M9_HLD
When '1', M9 stops.
M9_B
While in rotation, alternates between '1' and '0'.
Holding tray control PCB

Figure 3-114

Outputs from the DC Controller (5/11)

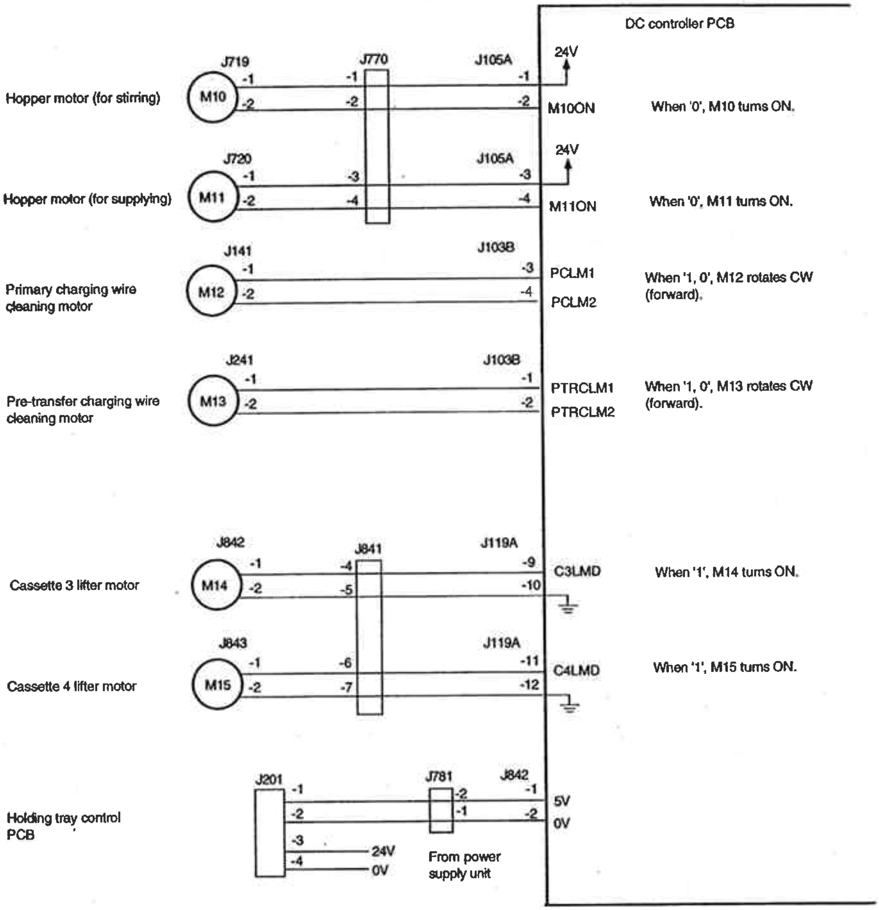

DC controller PCB
Hopper motor (for stirring)
M10
J719
-1
-2
J770
-1
-2
J105A
-1
-2
24V
M10ON
When '0', M10 turns ON.
Hopper motor (for supplying)
M11
J720
-1
-2
-3
-4
J105A
-3
-4
24V
M11ON
When '0', M11 turns ON.
Primary charging wire cleaning motor
M12
J141
-1
-2
J103B
-3
-4
PCLM1
PCLM2
When '1, 0', M12 rotates CW (forward).
Pre-transfer charging wire cleaning motor
M13
J241
-1
-2
J103B
-1
-2
PTRCLM1
PTRCLM2
When '1, 0', M13 rotates CW (forward).
Cassette 3 lifter motor
M14
J842
-1
-2
J841
-4
-5
J119A
-9
-10
C3LMD
When '1', M14 turns ON.
Cassette 4 lifter motor
M15
J843
-1
-2
-6
-7
J119A
-11
-12
C4LMD
When '1', M15 turns ON.
Holding tray control PCB
J201
-1
-2
-3
-4
24V
0V
J781
-2
-1
J842
-1
-2
5V
0V
From power supply unit

Figure 3-115

Outputs from the DC Controller (6/11)

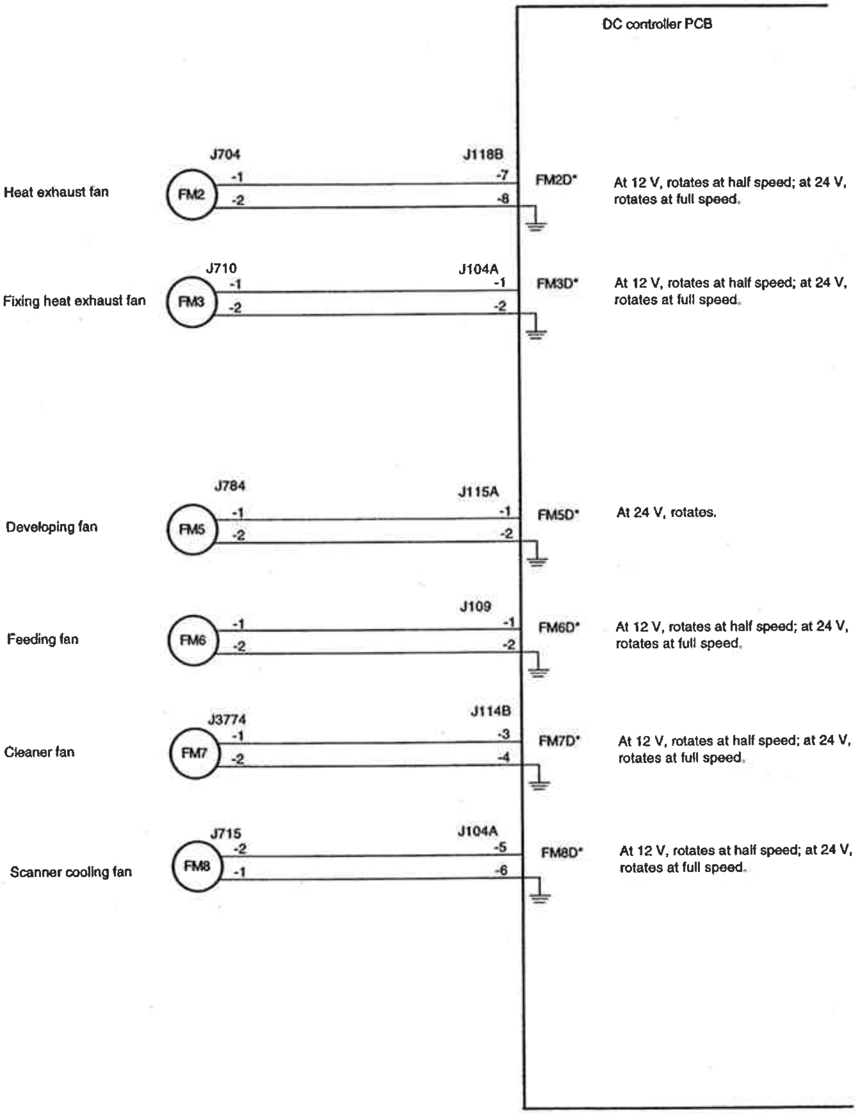

DC controller PCB
Heat exhaust fan
FM2
J704
-1
-2
J118B
-7
-8
FM2D*
At 12 V, rotates at half speed; at 24 V, rotates at full speed.
Fixing heat exhaust fan
FM3
J710
-1
-2
J104A
-1
-2
FM3D*
At 12 V, rotates at half speed; at 24 V, rotates at full speed.
Developing fan
FM5
J784
-1
-2
J115A
-1
-2
FM5D*
At 24 V, rotates.
Feeding fan
FM6
-1
-2
J109
-1
-2
FM6D*
At 12 V, rotates at half speed; at 24 V, rotates at full speed.
Cleaner fan
FM7
J3774
-1
-2
J114B
-3
-4
FM7D*
At 12 V, rotates at half speed; at 24 V, rotates at full speed.
Scanner cooling fan
FM8
J715
-2
-1
J104A
-5
-6
FM8D*
At 12 V, rotates at half speed; at 24 V, rotates at full speed.

Figure 3-116

Outputs from the DC Controller (7/11)

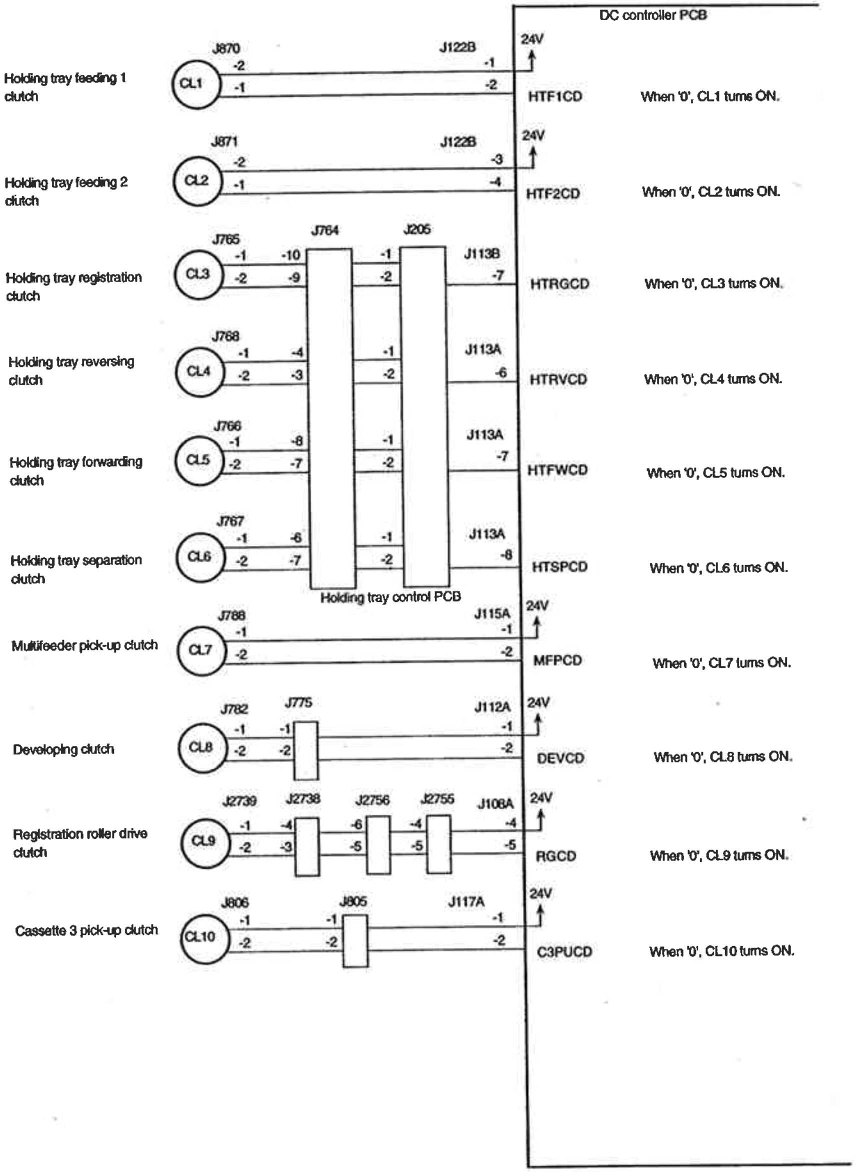

DC controller PCB
Holding tray feeding 1 clutch
CL1
J870
-2
-1
J122B
-1
-2
24V
HTF1CD
When '0', CL1 turns ON.
Holding tray feeding 2 clutch
CL2
J871
-2
-1
J122B
-3
-4
24V
HTF2CD
When '0', CL2 turns ON.
Holding tray registration clutch
CL3
J765
-1
-2
J764
-10
-9
J205
-1
-2
J113B
-7
HTRGCD
When '0', CL3 turns ON.
Holding tray reversing clutch
CL4
J768
-1
-2
-4
-3
-1
-2
J113A
-6
HTRVCD
When '0', CL4 turns ON.
Holding tray forwarding clutch
CL5
J766
-1
-2
-8
-7
-1
-2
J113A
-7
HTFWCD
When '0', CL5 turns ON.
Holding tray separation clutch
CL6
J767
-1
-2
-6
-7
-1
-2
J113A
-8
HTSPCD
When '0', CL6 turns ON.
Holding tray control PCB
Multifeeder pick-up clutch
CL7
J788
-1
-2
J115A
-1
-2
24V
MFPCD
When '0', CL7 turns ON.
Developing clutch
CL8
J782
-1
-2
J775
-1
-2
J112A
-1
-2
24V
DEVCD
When '0', CL8 turns ON.
Registration roller drive clutch
CL9
J2739
-1
-2
J2738
-4
-3
J2756
-6
-5
J2755
-4
-5
J108A
-4
-5
24V
RGCD
When '0', CL9 turns ON.
Cassette 3 pick-up clutch
CL10
J806
-1
-2
J805
-1
-2
J117A
-1
-2
24V
C3PUCD
When '0', CL10 turns ON.

Figure 3-117

Outputs from the DC Controller (8/11)

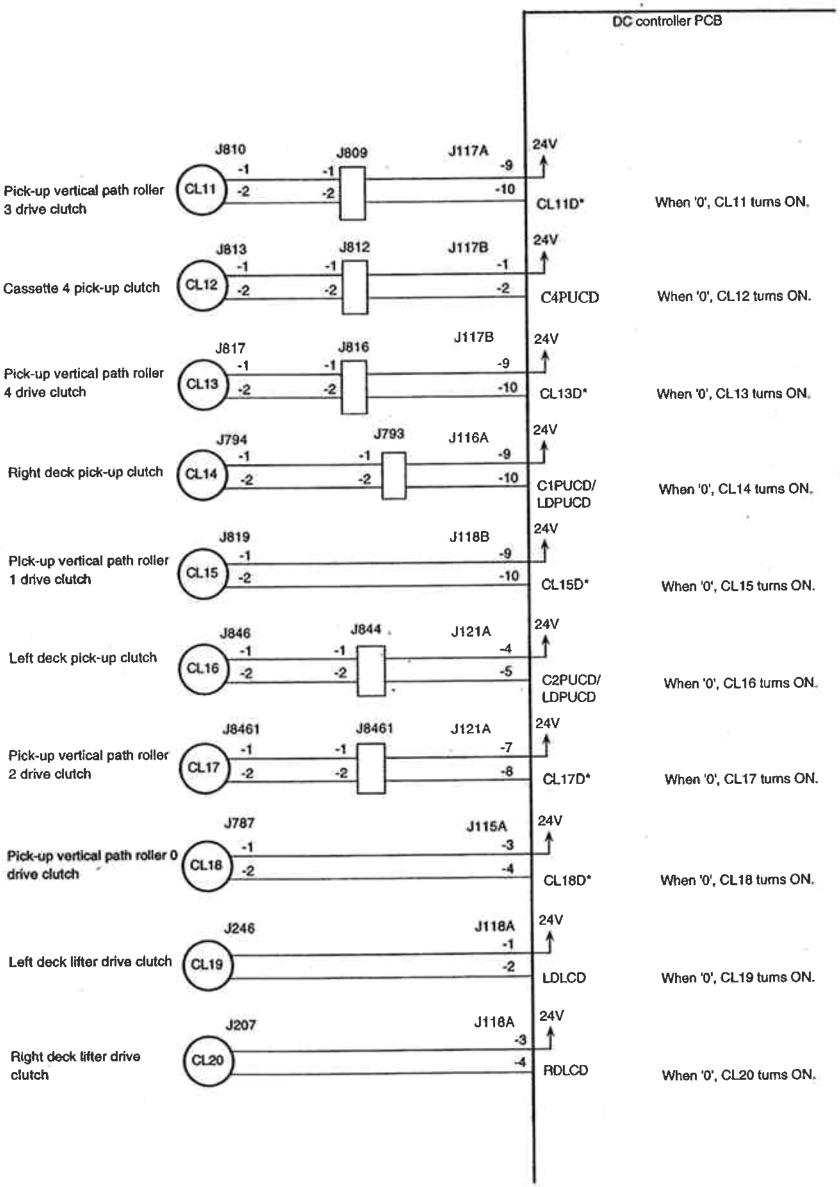

DC controller PCB
Pick-up vertical path roller 3 drive clutch
CL11
J810
J809
J117A
-1
-2
-9
-10
24V
CL11D*
When '0', CL11 turns ON.
Cassette 4 pick-up clutch
CL12
J813
J812
J117B
-1
-2
24V
C4PUCD
When '0', CL12 turns ON.
Pick-up vertical path roller 4 drive clutch
CL13
J817
J816
J117B
-9
-10
24V
CL13D*
When '0', CL13 turns ON.
Right deck pick-up clutch
CL14
J794
J793
J116A
-9
-10
24V
C1PUCD/LDPUCD
When '0', CL14 turns ON.
Pick-up vertical path roller 1 drive clutch
CL15
J819
J118B
-9
-10
24V
CL15D*
When '0', CL15 turns ON.
Left deck pick-up clutch
CL16
J846
J844
J121A
-4
-5
24V
C2PUCD/LDPUCD
When '0', CL16 turns ON.
Pick-up vertical path roller 2 drive clutch
CL17
J8461
J8461
J121A
-7
-8
24V
CL17D*
When '0', CL17 turns ON.
Pick-up vertical path roller 0 drive clutch
CL18
J787
J115A
-3
-4
24V
CL18D*
When '0', CL18 turns ON.
Left deck lifter drive clutch
CL19
J246
J118A
-1
-2
24V
LDLCD
When '0', CL19 turns ON.
Right deck lifter drive clutch
CL20
J207
J118A
-3
-4
24V
RDLCD
When '0', CL20 turns ON.

Figure 3-118

Outputs from the DC Controller (9/11)

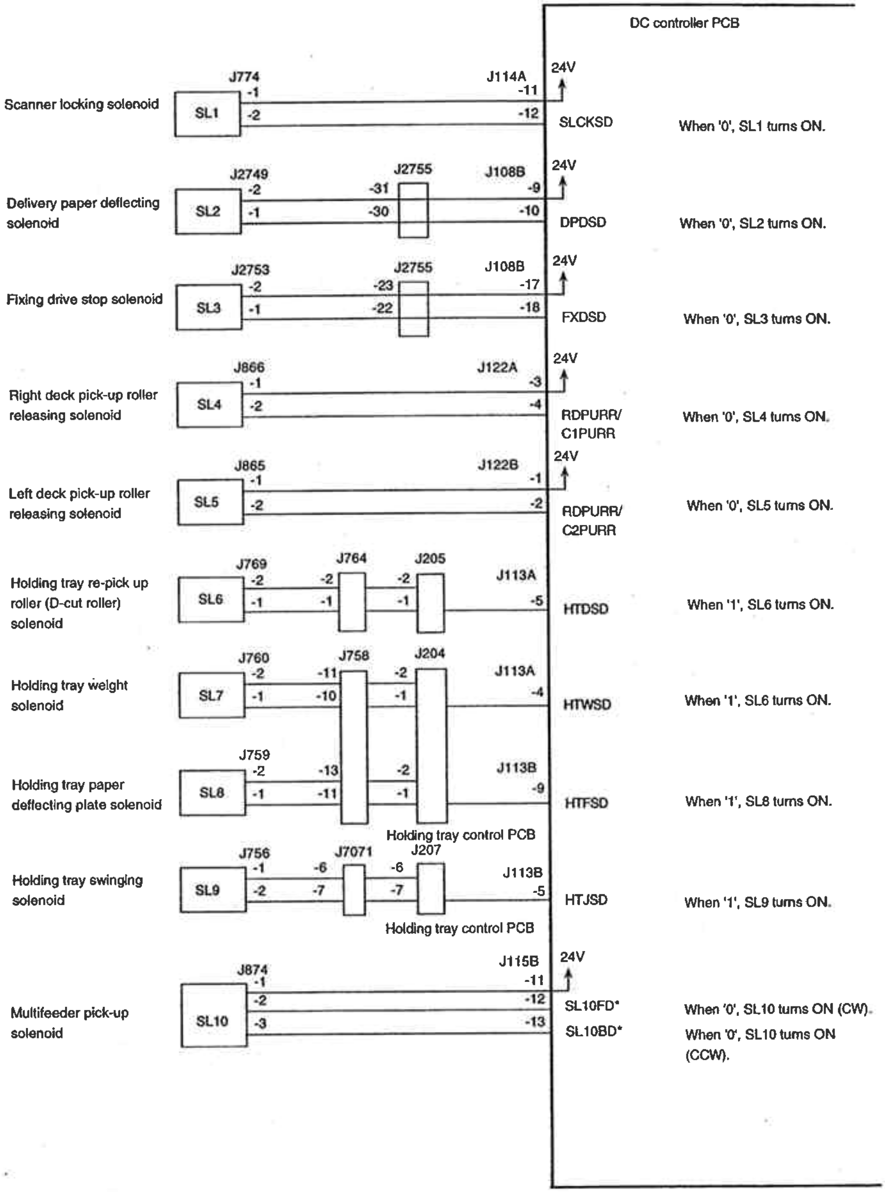

DC controller PCB
Scanner locking solenoid
SL1
J774
-1
-2
J114A
-11
-12
24V
SLCKSD
When '0', SL1 turns ON.
Delivery paper deflecting solenoid
SL2
J2749
-2
-1
J2755
-31
-30
J108B
-9
-10
24V
DPDSD
When '0', SL2 turns ON.
Fixing drive stop solenoid
SL3
J2753
-2
-1
J2755
-23
-22
J108B
-17
-18
24V
FXDSD
When '0', SL3 turns ON.
Right deck pick-up roller releasing solenoid
SL4
J866
-1
-2
J122A
-3
-4
24V
RDPURR/ C1PURR
When '0', SL4 turns ON.
Left deck pick-up roller releasing solenoid
SL5
J865
-1
-2
J122B
-1
-2
24V
RDPURR/ C2PURR
When '0', SL5 turns ON.
Holding tray re-pick up roller (D-cut roller) solenoid
SL6
J769
-2
-1
J764
-2
-1
J205
-2
-1
J113A
-5
HTDSD
When '1', SL6 turns ON.
Holding tray weight solenoid
SL7
J760
-2
-1
J758
-11
-10
J204
-2
-1
J113A
-4
HTWSD
When '1', SL6 turns ON.
Holding tray paper deflecting plate solenoid
SL8
J759
-2
-1
-13
-11
-2
-1
J113B
-9
HTFSD
When '1', SL8 turns ON.
Holding tray control PCB
Holding tray swinging solenoid
SL9
J756
-1
-2
J7071
-6
-7
J207
-6
-7
J113B
-5
HTJSD
When '1', SL9 turns ON.
Holding tray control PCB
Multifeeder pick-up solenoid
SL10
J874
-1
-2
-3
J115B
-11
-12
-13
24V
SL10FD*
SL10BD*
When '0', SL10 turns ON (CW).
When '0', SL10 turns ON (CCW).

Figure 3-119

Outputs from the DC Controller (10/11)

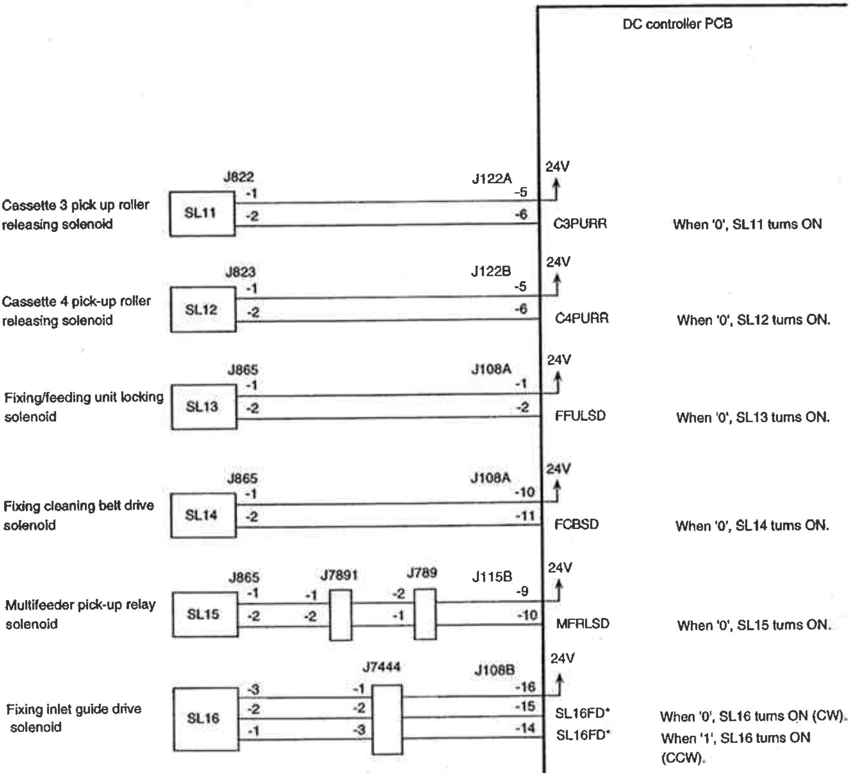

DC controller PCB
Cassette 3 pick up roller releasing solenoid
SL11
J822
-1
-2
J122A
-5
-6
24V
C3PURR
When '0', SL11 turns ON
Cassette 4 pick-up roller releasing solenoid
SL12
J823
-1
-2
J122B
-5
-6
24V
C4PURR
When '0', SL12 turns ON.
Fixing/feeding unit locking solenoid
SL13
J865
-1
-2
J108A
-1
-2
24V
FFULSD
When '0', SL13 turns ON.
Fixing cleaning belt drive solenoid
SL14
J865
-1
-2
J108A
-10
-11
24V
FCBSD
When '0', SL14 turns ON.
Multifeeder pick-up relay solenoid
SL15
J865
-1
-2
J7891
-1
-2
J789
-2
-1
J115B
-9
-10
24V
MFRLSD
When '0', SL15 turns ON.
Fixing inlet guide drive solenoid
SL16
-3
-2
-1
J7444
-1
-2
-3
J108B
-16
-15
-14
24V
SL16FD*
SL16FD*
When '0', SL16 turns ON (CW).
When '1', SL16 turns ON (CCW).

Figure 3-120

Outputs from the DC Controller (11/11)

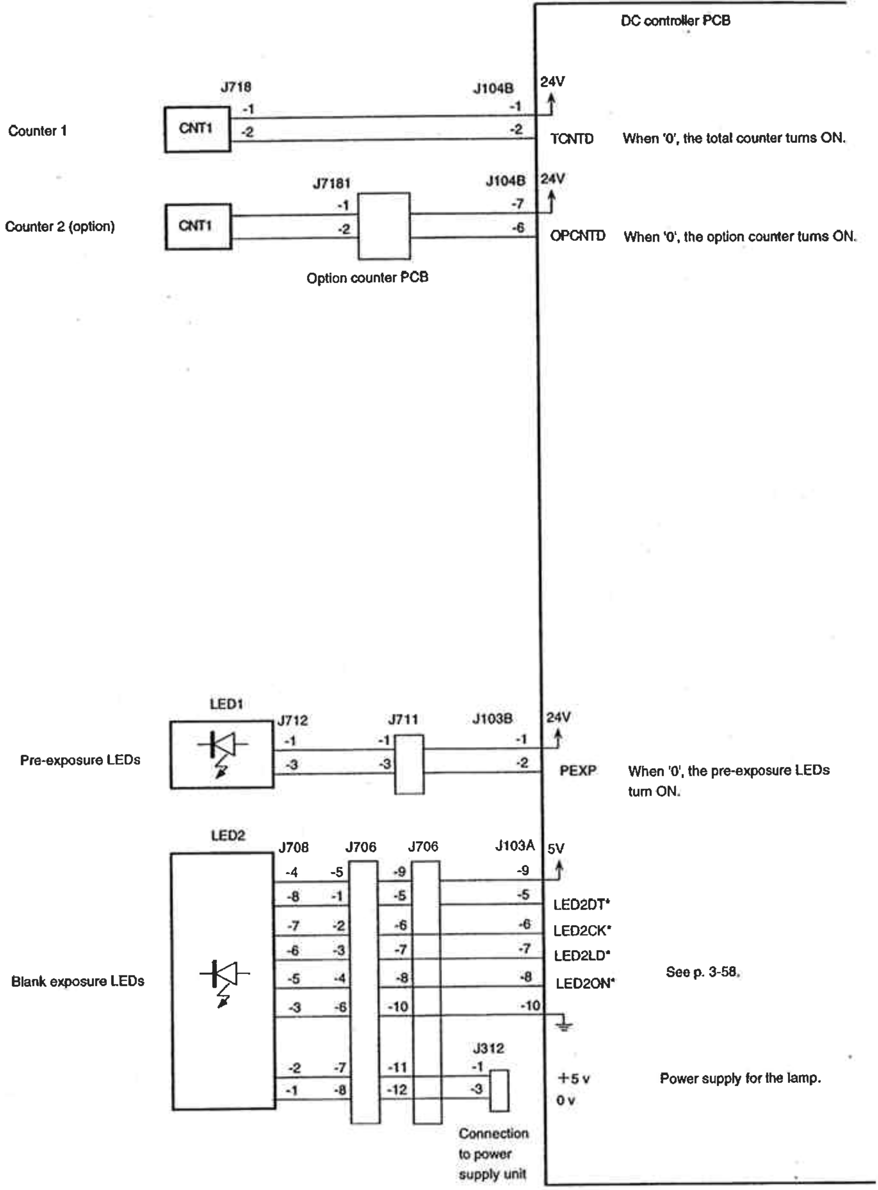

DC controller PCB
Counter 1
CNT1
J718
-1
-2
J104B
-1
-2
24V
TCNTD
When '0', the total counter turns ON.
Counter 2 (option)
CNT1
J7181
-1
-2
J104B
-7
-6
24V
OPCNTD
When '0', the option counter turns ON.
Option counter PCB
LED1
Pre-exposure LEDs
J712
-1
-3
J711
-1
-3
J103B
-1
-2
24V
PEXP
When '0', the pre-exposure LEDs turn ON.
LED2
Blank exposure LEDs
J708
J706
J706
J103A
-4 -5 -9 -9
-8 -1 -5 -5
-7 -2 -6 -6
-6 -3 -7 -7
-5 -4 -8 -8
-3 -6 -10 -10
5V
LED2DT*
LED2CK*
LED2LD*
LED2ON*
See p. 3-58.
J312
-2 -7 -11 -1
-1 -8 -12 -3
+5 v
0 v
Power supply for the lamp.
Connection to power supply unit

Figure 3-121

E. Inputs to and Outputs from the Options (1/1)

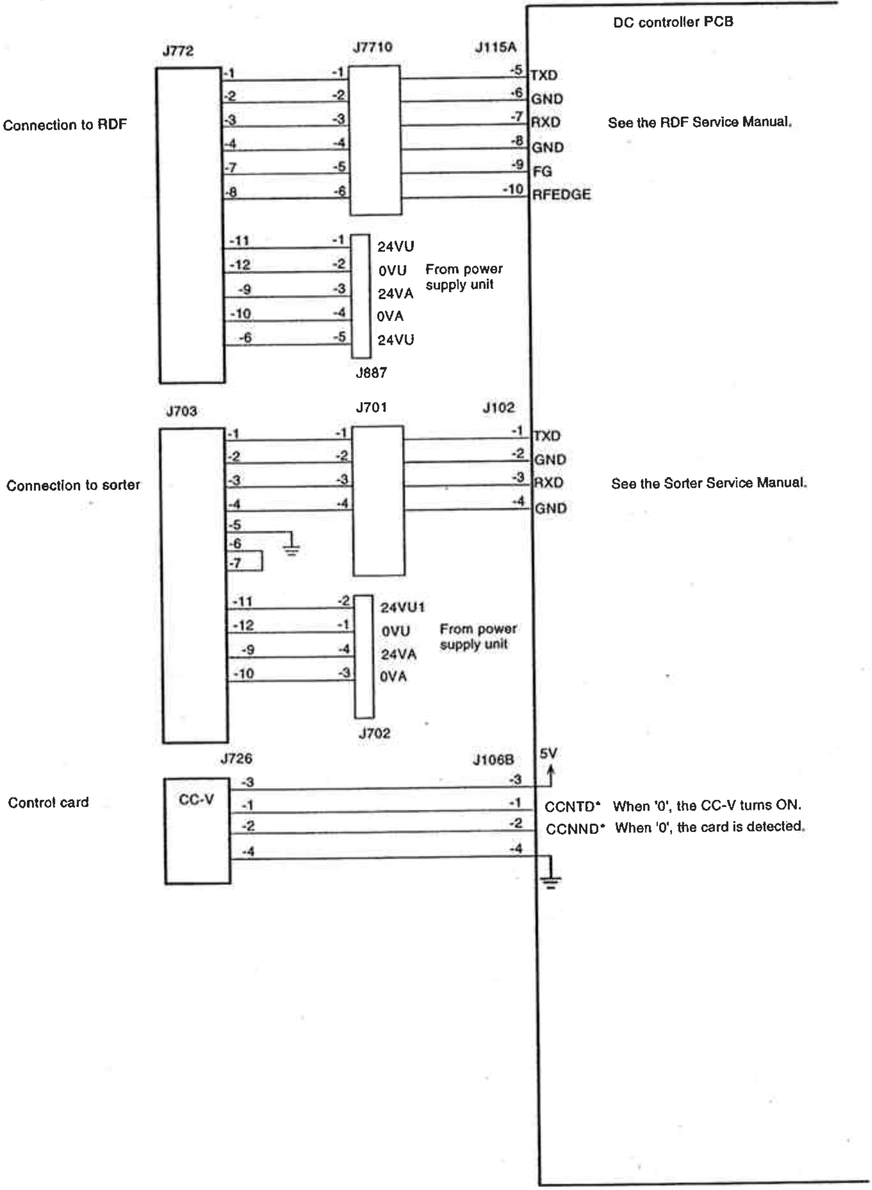

DC controller PCB
J772
J7710
J115A
Connection to RDF
TXD
GND
RXD
GND
FG
RFEDGE
See the RDF Service Manual.
24VU
0VU
24VA
0VA
24VU
From power supply unit
J887
J703
J701
J102
Connection to sorter
TXD
GND
RXD
GND
See the Sorter Service Manual.
24VU1
0VU
24VA
0VA
From power supply unit
J702
J726
J106B
5V
Control card
CC-V
CCNTD* When '0', the CC-V turns ON.
CCNND* When '0', the card is detected.

Figure 3-122

F. Main Motor Control Circuit

1. Outline

Figure 3-123 is a block diagram showing the main motor control circuit, which has the following functions:

① Turning on and off the main motor.
② Controlling the main motor to a specific speed.

The main motor is a DC motor equipped with a built-in clock pulse generator. When the motor rotates, the clock pulse generator generates clock pulses (MMCLK) according to the revolution of the motor.

The main motor control PCB uses these clock pulses to ensure that the motor rotates at a specific speed.

The clock pulses (MMCLK) are frequency-divided to 1/4 and sent to the DC controller as clock pulses (M1FG) for sequence control.

2. Operations

a. Turning ON and OFF the Main Motor

When the main motor drive signal (M1ON) goes '1', the phase comparator circuit and the frequency circuit shown in Figure 3-123 generate control signals.

The control signals generated by both circuits are mixed and sent to the motor drive circuit, thereby turning on the motor drive circuit and ultimately rotating the main motor.

When M1ON goes '0', the control signal output stops and the signal remains '0', keeping the main motor from rotating.

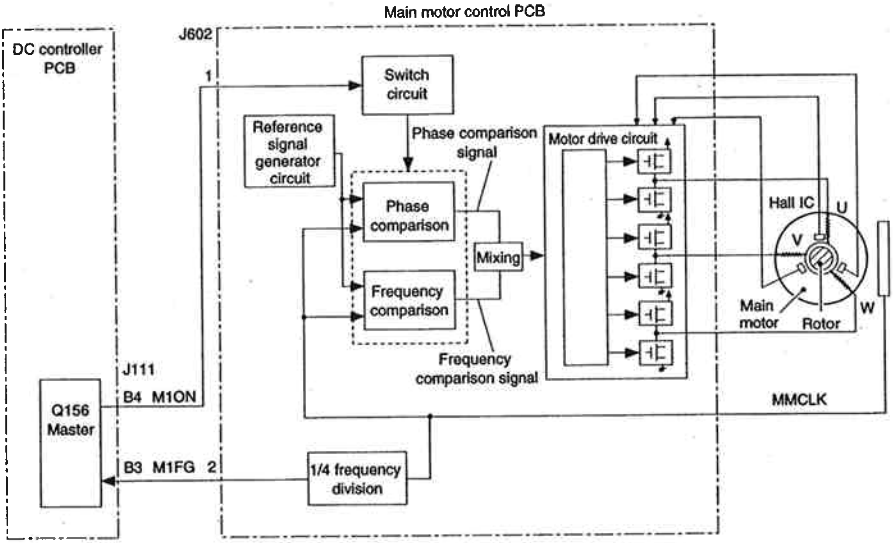

Main motor control PCB
DC controller PCB
J602
1
Switch circuit
Reference signal generator circuit
Phase comparison signal
Motor drive circuit
Phase comparison
Mixing
Frequency comparison
Frequency comparison signal
Hall IC
U
V
W
Main motor
Rotor
MMCLK
J111
B4 M1ON
Q156 Master
B3 M1FG 2
1/4 frequency division

Figure 3-123

b. Controlling the Main Motor to a Specific Speed

The NP6050's main motor is controlled so that it rotates at a specific speed.

The reference signal generator circuit on the motor control PCB generates reference pulses, which are sent to the phase comparator circuit and the frequency comparator circuit.

The phase comparator circuit generates control signal (phase comparison signal) so that the phase of the clock pulses (MMCLK) generated by the main motor and the phase of the reference pulses match.

Likewise, the frequency comparator circuit generates control signals (frequency comparison signal) so that the frequency of the clock pulses (MMCLK) generated by the main motor and the frequency of the reference pulses match.

Both phase comparison signal and frequency signal are mixed and sent to the motor drive circuit and used to control power to the main motor, thereby ensuring a specific revolution of the motor at all times.

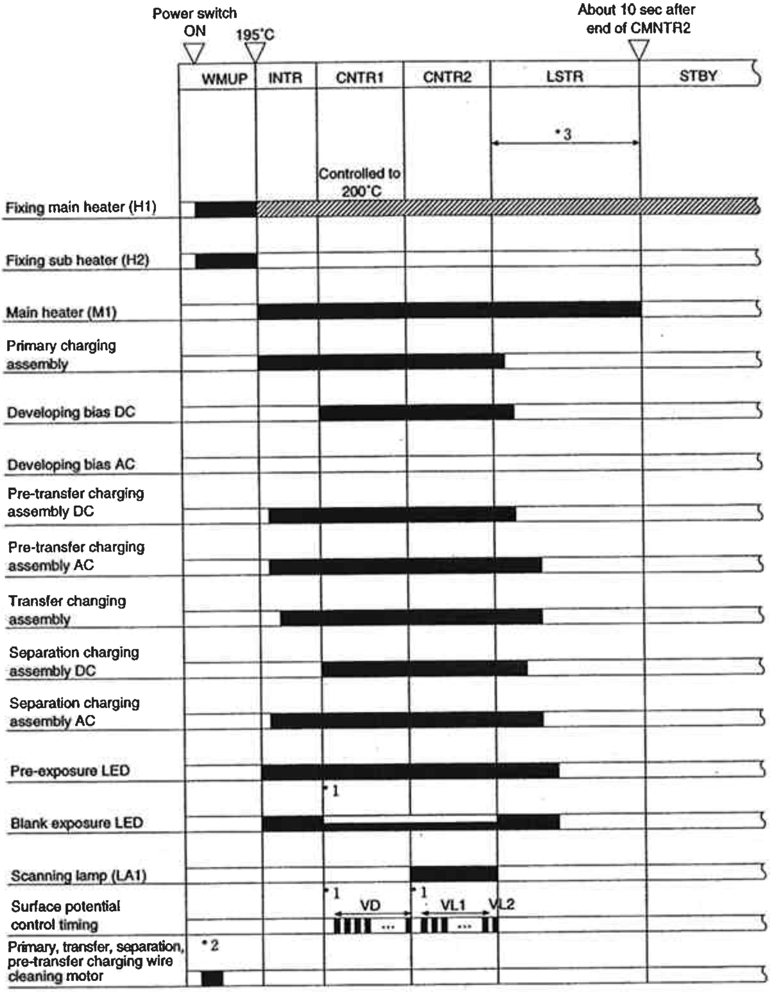
3. Detecting an Error

If an excess load is imposed on the motor for some reason, the DC controller PCB detects an error in the clock pulses of the main motor; as a result, it will indicate 'E010' on the control panel with a message to that effect.

G. Basic Sequence of Operations

1. Basic Sequence of Operations at Power-On (1/2)

The following sequence applies when the surface temperature of the fixing roller is 75°C at power-on and, in addition, the ambient temperature is 17°C or more.



*1. During potential control (CNTR1, CNTR2), blank exposure lamp LEDs corresponding to the potential sensor are turned OFF to measure VD and VL1.

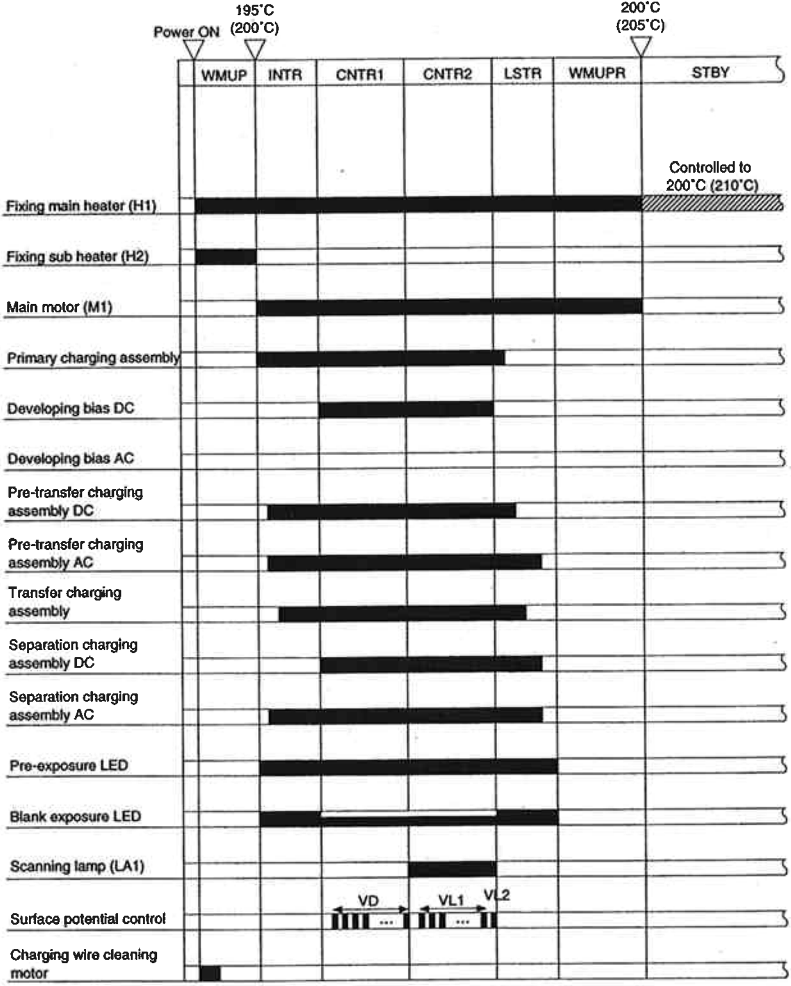
*2. When the power switch is turned ON, the primary, pre-transfer, transfer, and separation charging wires are cleaned if the surface temperature of the fixing roller is 100°C or less.

*3. Wait-up is executed in 10 sec after the end of potential control to speed up warm-up.

Figure 3-124

2. Basic Sequence of Operations at Power-On (2/2)

The following sequence applies when the surface temperature of the fixing roller is 75°C at power-on and, in addition, the ambient temperature is 17°C or more.



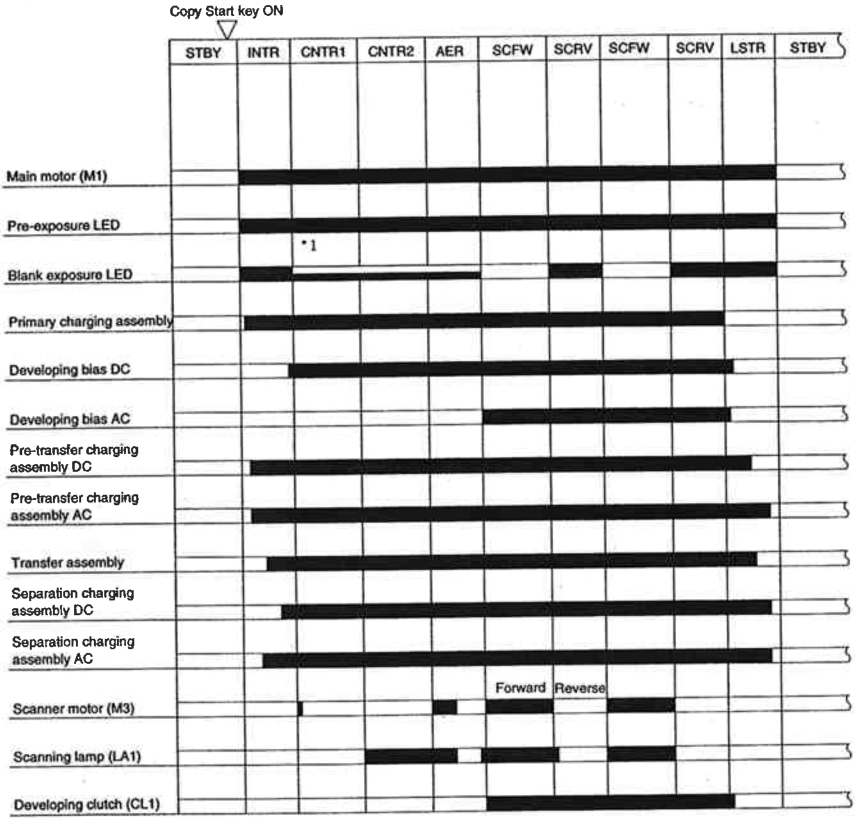
- The difference from the basic sequence of operations (1/2) is that WMUPR is executed until the surface temperature of the fixing roller reaches 200°C (210°C) by not ending LSTR in 10 sec after the end of potential control (CNTR1, CNTR2).
- The value within parentheses applies when the ambient temperature is 17°C or less and, in addition, the surface temperature of the fixing roller at power-on is 75°C or less.
  The value outside the parentheses applies when the surface temperature is 75°C or more.

Figure 3-125

Period			Function	Remarks
WAIT (wait)	WMUP (warm up)	From when the power switch is turned ON until the surface temperature of the fixing assembly upper roller reaches 195°C.	• Waits until the fixing assembly warms.	• If the surface temperature of the fixing roller is 100°C or less when the power switch is turned ON, the primary, pre-transfer, separation, and transfer charging wires are cleaned. • The lens moves to Direct position (A4 width, 297 mm).
	INTR (initial rotation)	From the end of WMUP until CNTGR1 starts after the surface temperature of the fixing assembly upper roller has reached 195°C.	• Evens out the surface temperature of the fixing assembly roller. • Discharges copy paper, if any.	
	CNTR1 (control rotation 1)	For about 5 sec after the end of INTR.	Measures the drum surface potential VD.	
	CNTR2 (control rotation 2)	For about 5 sec after the end of CNTR1.	Measures the drum surface potential VL.	A bias value (DC component) of the developing bias for copying is determined according to the measurements taken of VL2.
	LSTR (last rotation)	While the photosensitive drum makes a single rotation.	Cleans the surface of the drum as post-treatment (removes charges).	
STBY		Until the Copy Start key is pressed or the power switch is turned OFF after the end of LSTR.	• Waits for a press on the Copy Start key or other operation key.	• The indications on the control panel switch to standard mode 2 min after the end of LSTR. • Copying will start if the Copy Start key was pressed after placing an original during the wait period (auto start).

Table 3-101

3. Basic Sequence of Operations during Copying


Copy Start key ON
STBY
INTR
CNTR1
CNTR2
AER
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
Main motor (M1)
Pre-exposure LED
*1
Blank exposure LED
Primary charging assembly
Developing bias DC
Developing bias AC
Pre-transfer charging assembly DC
Pre-transfer charging assembly AC
Transfer assembly
Separation charging assembly DC
Separation charging assembly AC
Forward
Reverse
Scanner motor (M3)
Scanning lamp (LA1)
Developing clutch (CL1)

*1 Turns OFF blank exposure LEDs corresponding to the potential sensor for potential measurement (VD, VL1, VL2).

Figure 3-126

Period		Function	Remarks
INTR (initial rotation)	From when the Copy Start key is pressed until CNTR1 starts.	Stabilizes the sensitivity of the drum in preparation for copying.	·Moves the lens. If the lens does not reach a specific position within a specific period of time, INTR is continued until the lens reaches the position.
CNTR1 (control rotation 1)	For about 5 sec after the end of INTR.	Controls the drum surface potential VD.	The scanner motor is rotated in reverse before potential control, thereby returning the scanner to home position.
CNTR2 (control rotation 2)	For about 5 sec after the end of CNTR1.	Controls the drum surface potential VL.	The value of the developing bias (DC component) is determined for copying according to the measurements taken of VL2.
AER (AE rotation)	Until the scanner returns to home position after having moved forward about 120 mm.	Measures the density of the original while the scanner is moving in reverse.	·Control is executed only in AE mode.
SCFW (scanner forward)	While the scanner is moving forward. ·The distance over which the scanner moves forward varies according to the copy paper size and the reproduction ratio. ·The speed at which the scanner moves forward varies according to the reproduction ratio.	The scanning lamp exposes the original, and the reflected optical image is projected on the photosensitive drum by way of mirrors and lenses.	·The registration signal is generated, and copy paper is moved to the transfer assembly. ·The pick-up signal is generated, and the second sheet of copy paper is picked up.
SCRV (scanner forward)	While the scanner is moving in reverse.	·Returns the scanner to home position in preparation for the next copying run.	
LSTR (last rotation)	From the end of SCRV until the main motor stops.	The surface of the drum is cleaned as post-treatment (removes charges).	Discharges the last sheet of copy paper.

Table 3-102

4. Basic Sequence of Operations for Page Separation

In page separation mode, the original on the left side of the copyboard is copied (CSFW1) and then the original on the right side of the copyboard is copied (SCFW2).

If the copy count is set to '2' or higher, the original on the left is copied for as many copies as specified; then, the original on the right is copied as specified.

If AE is used in combination with page separation, the copier's AE mode is used.

The density of the original, therefore, is measured in AE mode over a distance of 120 mm starting at the leading edge of the original. Using the measurements, the originals on both left and right sides of the copyboard are copied.

Reference:

If the conditions of measurement indicated on p. 3-49 exist, potential control rotation (CNTR1, 2) is executed after the end of INTR.

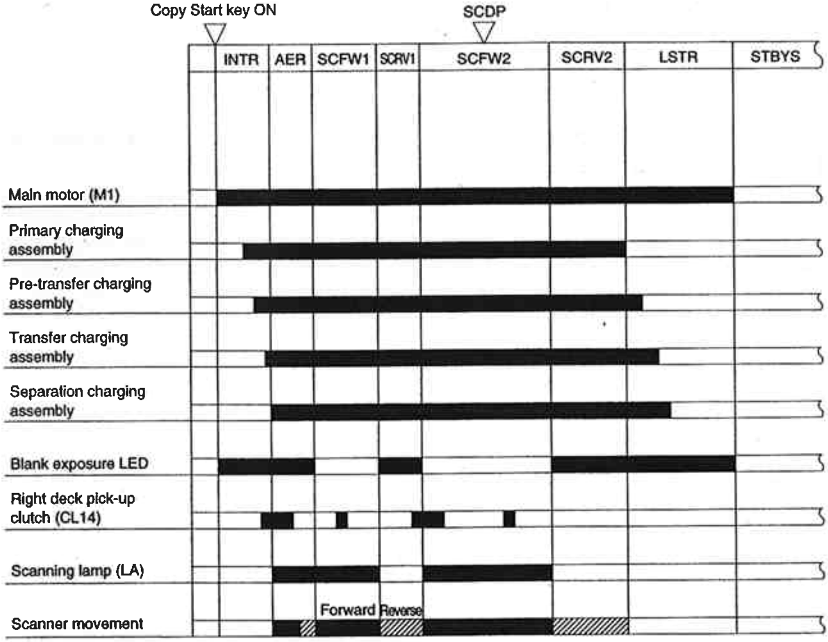

Copy Start key ON
SCDP
INTR
AER
SCFW1
SCRV1
SCFW2
SCRV2
LSTR
STBYS
Main motor (M1)
Primary charging assembly
Pre-transfer charging assembly
Transfer charging assembly
Separation charging assembly
Blank exposure LED
Right deck pick-up clutch (CL14)
Scanning lamp (LA)
Scanner movement
Forward
Reverse

Figure 3-127

Period		Function	Remarks
SCFW1 (scanner forward 1; copying original on left)	While the scanner is moving forward. ·The distance over which the scanner moves forward varies according to the copy paper size and the reproduction ratio.	The scanning lamp exposes the original on the left of the copyboard, and the reflected optical images are projected to the photosensitive drum by way of mirrors and lenses.	·The registration signal is generated, and the copy paper is moved to the transfer assembly. ·The pick-up signal is generated, and the next sheet of copy paper is picked up.
SCRV1 (scanner reverse 1)	From when the scanner moves in reverse until copy paper is discharged.	·The scanner is returned to home position in preparation for the next copying run. ·The toner on the drum is transferred to the copy paper.	
SCSW2 (scanner forward 2; copying original on the right)	While the scanner is moving forward. ·The distance over which the scanner moves forward varies according to the copy paper size and the reproduction ratio.	The scanning lamp exposes the original on the right side of the copyboard, and the reflected optical image is projected on the photosensitive drum through mirrors and lenses.	·The registration signal is generated using the SCDP signal so that the image leading edge of the original on the right and the copy paper match.
SCRV (scanner reverse 2)	From when the scanner moves in reverse until the developing clutch turns OFF.	·The scanner is returned to the home position in preparation for the next copying run. ·The toner on the drum is transferred to the copy paper.	

Note: For copy sequences other than the above, see Table 3-102.

Table 3-103

II. EXPOSURE SYSTEM

A. Varying the Reproduction Ratio

The reproduction ratio in the axial direction of the drum is varied by the lens drive system, and the reproduction ratio in the drum peripheral direction is varied by the scanner drive system and the main drive system.

The lens drive system uses a zoom lens; as shown in Figure 3-201, the position of the lens and the focal distance are changed to vary the reproduction ratio in the axial direction of the drum.

The scanner drive system moves the No. 1 mirror relatively faster (reduction) than the peripheral speed of the drum or slower (enlargement) to vary the reproduction ratio in the peripheral direction of the drum.

Reference:

In Direct mode, the relative speed of the No. 1 mirror and the peripheral speed of the drum are the same.

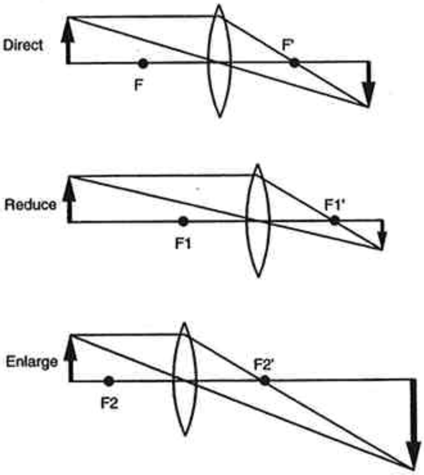

Direct
F
F'
Reduce
F1
F1'
Enlarge
F2
F2'

Figure 3-201

B. Lens Drive System

1. Moving the Lens

The NP6050 picks up and feeds copy paper using center reference; originals, on the other hand, are placed using rear reference when the copyboard cover is used.

As such, the lens is moved in Y direction (vertical) depending on the width of copy paper even in Direct mode.

- Using the Copyboard

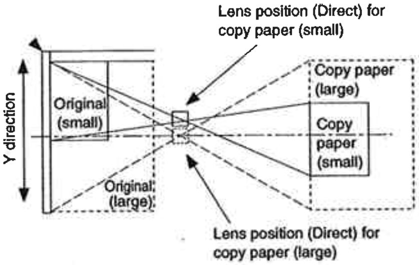

Lens position (Direct) for copy paper (small)
Y direction
Original (small)
Original (large)
Copy paper (large)
Copy paper (small)
Lens position (Direct) for copy paper (large)

Figure 3-202 (top view)

The RDF installed to the NP6050 uses center reference; for this reason, the lens is not moved in Y direction (vertical) as long as the original and the copy paper are of the same size and copies are made in Direct (Figure 3-203). However, if the size of the original and the size of the copy paper are different, the lens is moved in Y direction (vertical) so that the images on the copies will be processed in the same way as when using the copyboard cover.

- With RDF/ADF in Use

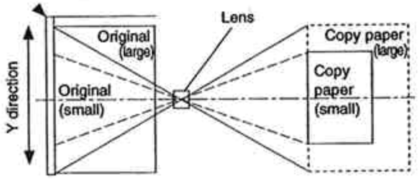

Lens
Y direction
Original (large)
Original (small)
Copy paper (large)
Copy paper (small)

Figure 3-203 (top view)

2. Moving the Lens

a. Moving the Lens in Y Direction (vertical)

The NP6050's lens is installed to a mobile lens stage, which moves in Y direction (vertical) by the rotation of the lens Y motor (M5).

b. Moving the Lens in X Direction (horizontal)

The lens is moved in X direction (horizontal) by the rotation of the lens X motor (M4) installed to the back of the lens stage.

3. Controlling the Lens Motors

Both lens X motor (M4) and lens Y motor (M5) are 4-phase stepping motors. (Both motors are controlled in the same way, and the descriptions that follow are on the lens X motor.)

The motor is controlled by four motor drive signals (M4A, M4A*, M4B, M4B*) generated by the DC controller PCB. Changing the output timing of these motor drive signals, the direction in which the lens X motor rotates is changed.

While the lens X motor remains at rest, the lens X motor hold signal (X-HOLD) is generated, thereby applying the brakes using a voltage lower than the voltage used to rotate the motor.

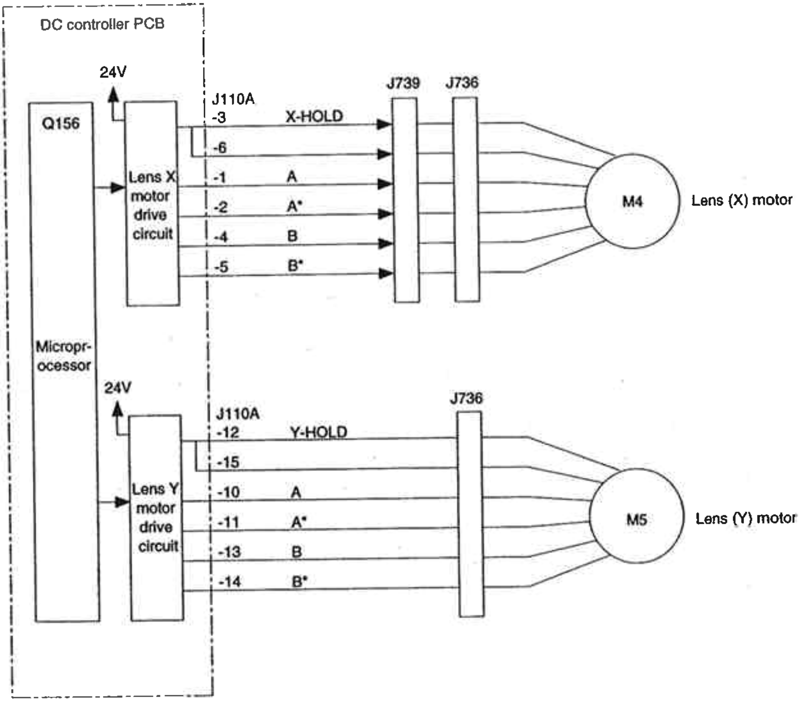

DC controller PCB
24V
Q156
Lens X motor drive circuit
J110A
-3
X-HOLD
-6
-1
A
-2
A*
-4
B
-5
B*
J739
J736
M4
Lens (X) motor
Microprocessor
24V
Lens Y motor drive circuit
J110A
-12
Y-HOLD
-15
-10
A
-11
A*
-13
B
-14
B*
J736
M5
Lens (Y) motor

Figure 3-204

4. Moving the Lens

a. At Power-On

When the power switch is turned ON, the lens X motor (M4) rotates, thereby moving the lens in the direction of the lens X home position sensor (PS6).

Then, the lens Y motor (M5) rotates to move the lens in the direction of the lens Y home position sensor (PS7).

When the signal plate on the lens housing blocks the lens X home position sensor (PS6), the X motor starts to rotate in reverse; when the signal plate on the lens stage blocks the lens Y home position sensor (PS7), the lens Y motor (M5) starts to rotate in reverse.

Each motor stops when the lens reaches Direct position (A4 copy paper width). (See period I in Figure 3-205.)

b. While Making Copies

The microprocessor slave (Q140) remembers the position of the lens representing Direct mode (A4 copying). When the ratio changes, it sends drive pulses to the lens X motor (M4)/Y motor (M5) immediately to change the position of the lens accordingly. (See period II in Figure 3-205.)

The lens Y motor (M5) starts to move after the original size and the copy paper size have been determined in response to a press on the Copy Start key. (See period III in Figure 3-205.)

- Sequence of Operations Used to Move the Lens

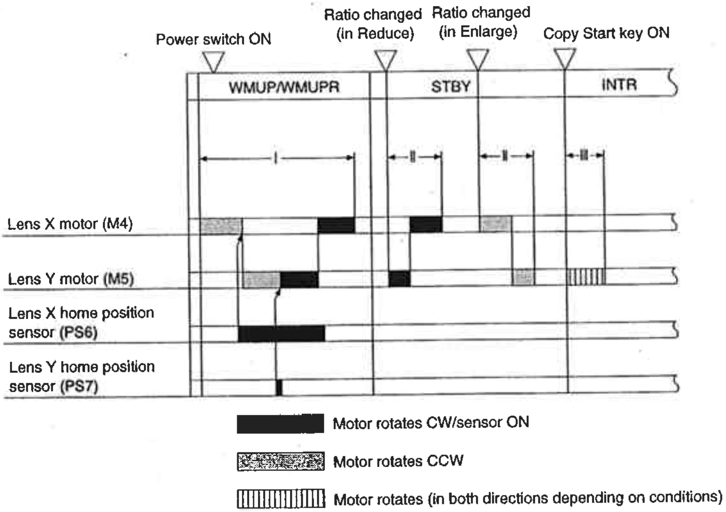

Power switch ON
Ratio changed (in Reduce)
Ratio changed (in Enlarge)
Copy Start key ON
WMUP/WMUPR
STBY
INTR
I
II
II
III
Lens X motor (M4)
Lens Y motor (M5)
Lens X home position sensor (PS6)
Lens Y home position sensor (PS7)
Motor rotates CW/sensor ON
Motor rotates CCW
Motor rotates (in both directions depending on conditions)

Figure 3-205

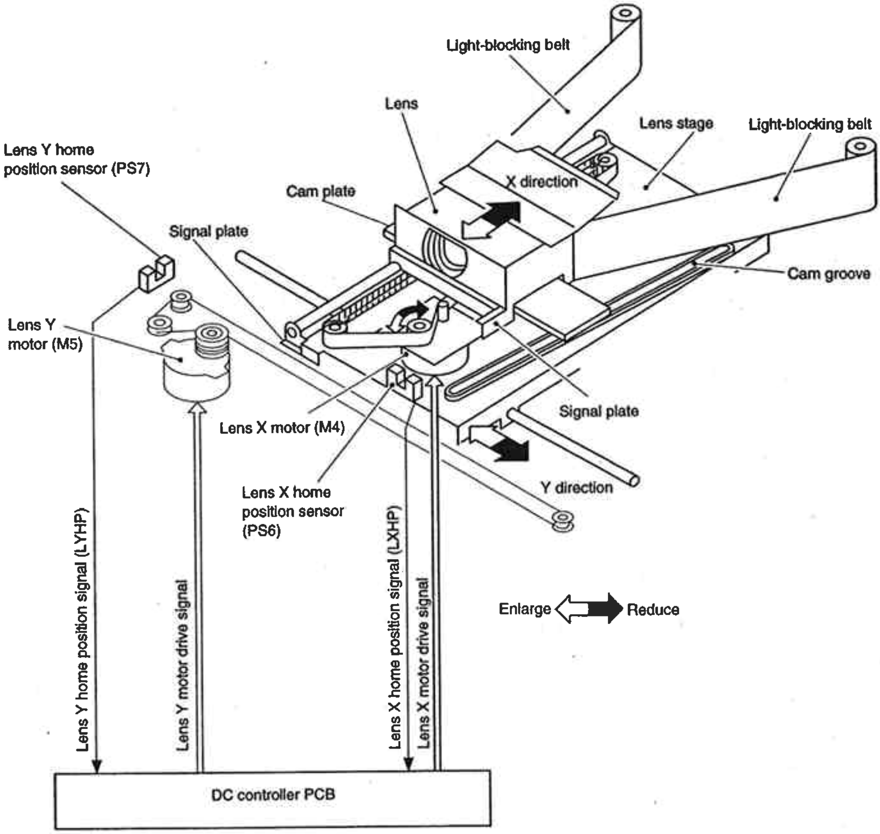

Light-blocking belt
Lens
Lens stage
Light-blocking belt
Lens Y home position sensor (PS7)
Cam plate
X direction
Signal plate
Cam groove
Lens Y motor (M5)
Lens X motor (M4)
Signal plate
Lens X home position sensor (PS6)
Y direction
Lens Y home position signal (LYHP)
Lens Y motor drive signal
Lens X home position signal (LXHP)
Lens X motor drive signal
Enlarge
Reduce
DC controller PCB

Figure 3-206

C. Scanner Drive System

1. Outline

The scanner is moved forward and in reverse by changing the direction in which the scanner motor (M3) rotates.

The speed at which the scanner motor rotates when the scanner moves forward varies according to the selected reproduction ratio.

The speed at which the scanner motor rotates when the scanner moves in reverse remains the same regardless of the selected reproduction ratio; it is 2.9 times the speed at which the motor rotates when the scanner moves forward in Direct.

The brakes are applied to the scanner as soon as the signal plate reaches the scanner original leading edge 1 sensor (PS3) to slow down the scanner; the brakes are applied once again when the signal plate reaches the scanner home position sensor (PS1), thereby stopping the scanner at home position.

When the RDF is used in stream reading, the No. 1 mirror mount of the scanning system is monitored by the scanner original leading edge 2 sensor (PS4) to see whether it has reached a specific position.

The distance over which the scanner moves varies according to the copy size and the reproduction ratio.

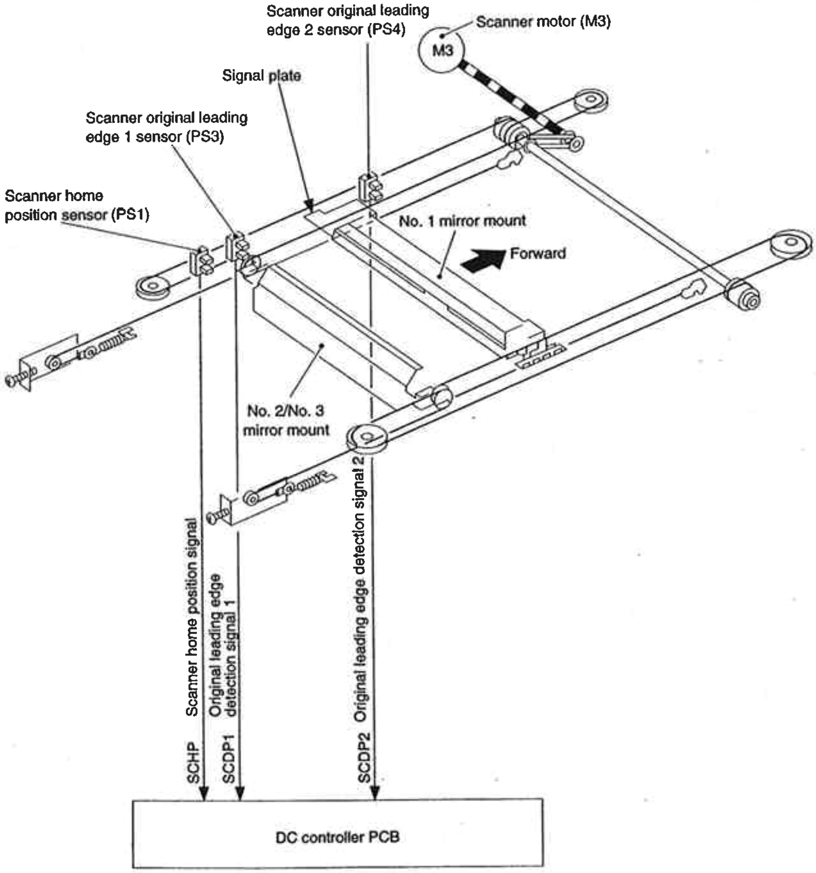

Scanner original leading edge 2 sensor (PS4)
Scanner motor (M3)
M3
Signal plate
Scanner original leading edge 1 sensor (PS3)
Scanner home position sensor (PS1)
No. 1 mirror mount
Forward
No. 2/No. 3 mirror mount
SCHP Scanner home position signal
SCDP1 Original leading edge detection signal 1
SCDP2 Original leading edge detection signal 2
DC controller PCB

Figure 3-207

2. Relationship between Scanner Sensor and Signals

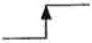
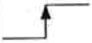
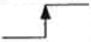
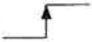
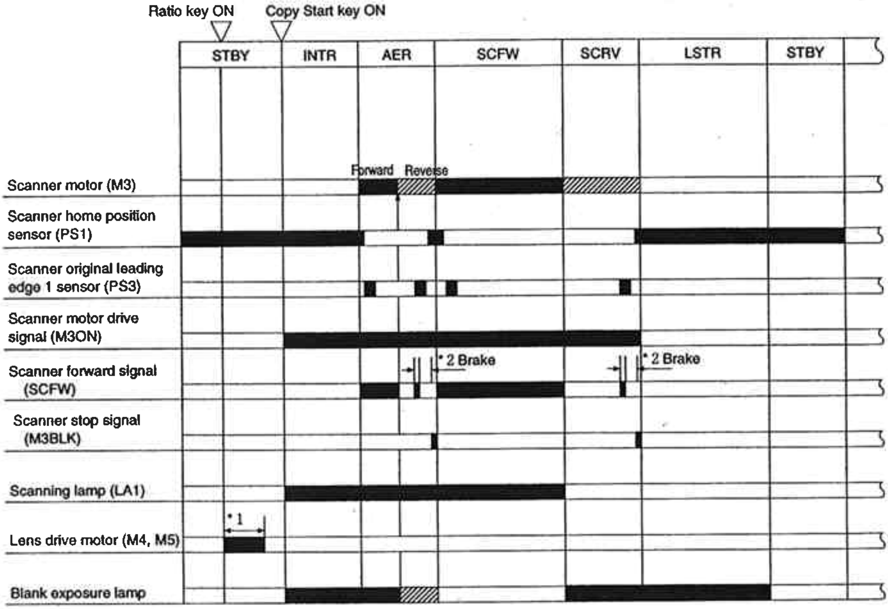
Scanner sensor	Signal	Scanner		Description
		Forward	Reverse	
Scanner home position sensor (PS1)	SCHP			·The scanner is at home position.
				·The scanner has reached home position.
Original detection leading edge 1 sensor (PS3)	SCDP1			·The registration clutch turns ON. ·The scanner is checked against reference travel distance.
				·The brakes are applied to the scanner to slow down.
Scanner original leading edge 2 sensor (PS4)	SCDP2			·The scanner reaches stream reading position.

Table 3-201

3. Basic Sequence of Operations for Scanner Movement

The distance over which the scanner moves forward is determined by the microprocessor in relation to the copy paper size and the reproduction ratio as well as copying mode.

The microprocessor computes the dimensions of an original that can be copied to the selected copy paper size and reproduction ratio to determine the distance over which the scanner travels forward.


Ratio key ON
Copy Start key ON
STBY
INTR
AER
SCFW
SCRV
LSTR
STBY
Forward
Reverse
Scanner motor (M3)
Scanner home position sensor (PS1)
Scanner original leading edge 1 sensor (PS3)
Scanner motor drive signal (M3ON)
Scanner forward signal (SCFW)
*2 Brake
*2 Brake
Scanner stop signal (M3BLK)
Scanning lamp (LA1)
*1
Lens drive motor (M4, M5)
Blank exposure lamp

*1 :The lens is moved to suit the selected reproduction ratio and copy paper size.

*2 :The degree of braking may be varied in service mode (*3*).

Figure 3-208

4. Sequence of Operations for Scanner Movement (page separation)

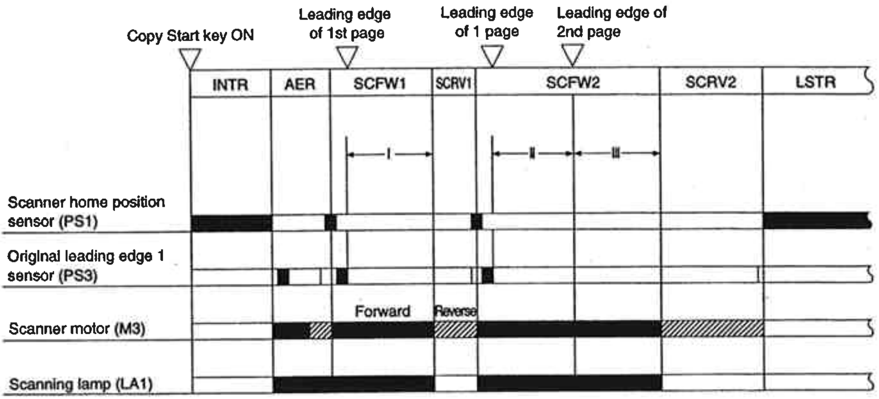

Copy Start key ON
Leading edge of 1st page
Leading edge of 1 page
Leading edge of 2nd page
INTR
AER
SCFW1
SCRV1
SCFW2
SCRV2
LSTR
I
II
III
Scanner home position sensor (PS1)
Original leading edge 1 sensor (PS3)
Forward
Reverse
Scanner motor (M3)
Scanning lamp (LA1)

Figure 3-209

I, II, and III in Figure 3-209 are all controlled by the microprocessor on the DC controller PCB with reference to the original leading edge detection signal 1 (falling edge of SCDP1).

The microprocessor determines the distance over which the scanner moves forward in relation to the reproduction ratio, original size, or the size of the selected cassette.

I, II: The distance over which the scanner moves forward is determined in relation to the reproduction ratio and the original size or the size of the selected cassette.

III: If original size detection is executed, the microprocessor assumes the value obtained by dividing the detected original size as the center to be used as the leading edge of the second page.

Control will be with reference to the size of the selected cassette for copying in page separation without detecting the size of the original.

If II shown in Figure 3-209 exceeds 220 mm, 220 mm (approximate) will be used as the leading edge of the second page.

If the order of making copies (first page and second page) is reversed in extended mode (Chapter 1), the operations will be the same except that the order of SCFW2/SCRV2 and SCFW1/SCRV1 is reversed.

Reference:

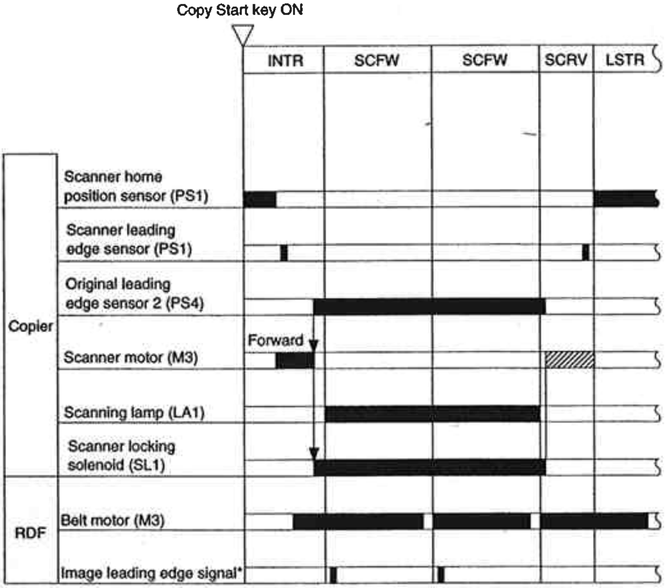
If two or more modes are selected, the scanner is controlled using the lowest value that has been obtained by reading the size of the original.

The microprocessor exerts control with reference to the size of the original when the following modes are selected:

Mode	Reference original size
·RDF in use	Original size detected by the feeder
·Original frame erasing mode	Original size set by the user

Table 3-202

5. Sequence of Scanner Movement with the RDF in Use (A4, 2 originals, 1 copy)


Copy Start key ON
INTR
SCFW
SCFW
SCRV
LSTR
Copier
Scanner home position sensor (PS1)
Scanner leading edge sensor (PS1)
Original leading edge sensor 2 (PS4)
Forward
Scanner motor (M3)
Scanning lamp (LA1)
Scanner locking solenoid (SL1)
RDF
Belt motor (M3)
Image leading edge signal*

*Generated by the RDF so that registration by the RDF and the registration by the copier match.

Figure 3-210

a. Outline

Stream reading is executed if the copier is equipped with an RDF.

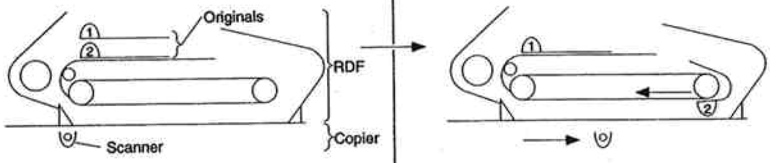
In stream reading, the copier's scanner is fixed in position and the RDF feeds originals from right to left for exposure.

■ Conditions

- A4, LTR, or B5 one-sided original
- one-original-to-one-copy mode
- reproduction ratio between 70% and 115%
- paper source not cassette 4

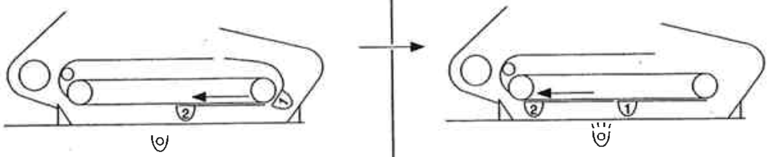
Executing stream reading enables omission of scanner reversal, thereby closing up the distance between two sheets of paper and ultimately enabling reproduction of 60 copies per minute (A4, LTR).

b. Stream Reading with the RDF in Use



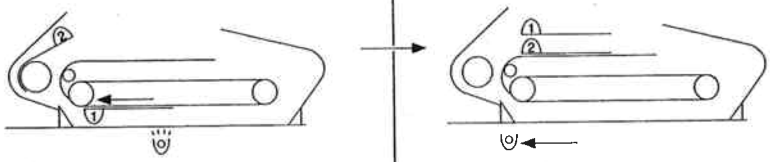
① Originals are set.

② The Copy Start key is pressed. The 2nd original is picked up from the right. The scanner moves to the center of the copyboard and is locked in position by the scanner locking solenoid.



③ When the leading edge of the 2nd original has been fed as far as a point slightly in front of the scanner, the RDF sends the image leading signal to the copier. In response, the copier turns on the registration clutch to match the registration of the original and that of the copy paper.

④ The 2nd original is slid over the scanner and exposed. Then, the RDF generates the image leading edge signal for the 1st original.

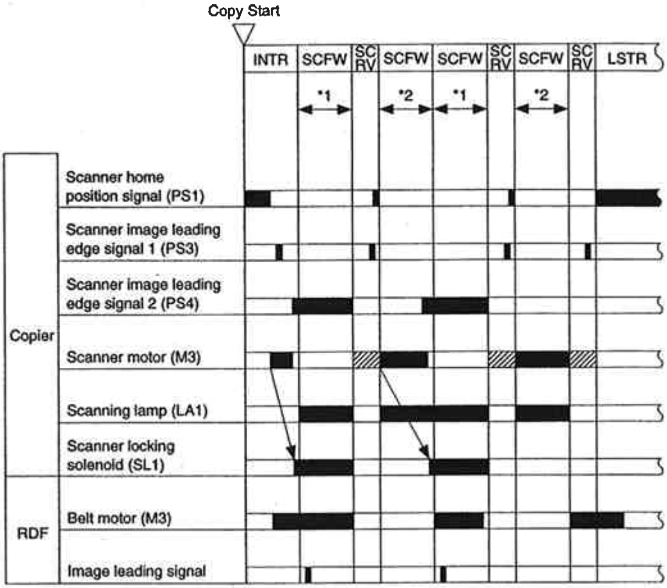


⑤ The 1st original is slid over the scanner and exposed. The 2nd original is discharged from the left.

⑥ The scanner returns to the home position, and the 1st original is discharged from the left.

Figure 3-211

6. Sequence of Operations with the RDF in Use (A4, 2 originals, 2 copies)


Copy Start
INTR
SCFW
SC RV
SCFW
SCFW
SC RV
SCFW
SC RV
LSTR
*1
*2
*1
*2
Copier
Scanner home position signal (PS1)
Scanner image leading edge signal 1 (PS3)
Scanner image leading edge signal 2 (PS4)
Scanner motor (M3)
Scanning lamp (LA1)
Scanner locking solenoid (SL1)
RDF
Belt motor (M3)
Image leading signal

*1: Scanner fixed in position.
*2: Scanner moves.

Figure 3-212

a. Outline

Copies are made using a combination of stream reading (fixed scanner) and normal scanning (moving scanner) with the RDF installed to the copier under the following conditions:

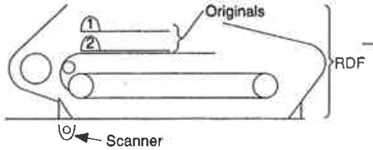
■ Conditions
- one-to-multiple-copies mode
- reproduction ratio between 70% and 115%
- paper source other than cassette 4

In such a combination of modes, the following takes place:

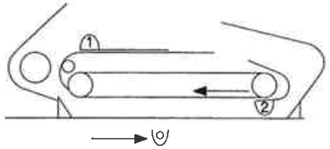
① The 1st copy is made in stream reading.

② Immediately after stream reading, the original is stopped on the copyboard, and the remaining number of copies are made using normal scanning (mobile scanner).

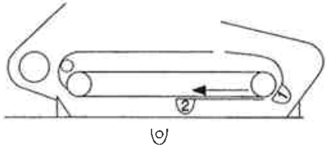
b. Combination of Stream Reading and Normal Scanning (A4, 2 originals, multiple copies)



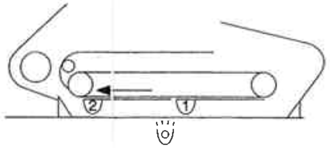
① Originals are set.



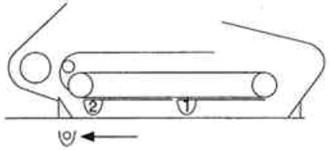
② The Copy Start key is pressed. The 2nd original is picked up. The scanner is moved to the center of the copyboard and is locked in place by the scanner locking solenoid.



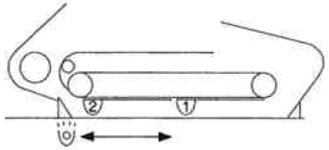
③ When the leading edge of the 2nd original has been fed as far as a point slightly in front of the scanner, the RDF sends the image leading edge signal to the copier. In response, the copier turns ON the registration clutch to match the registration of the original with that of the copy paper.



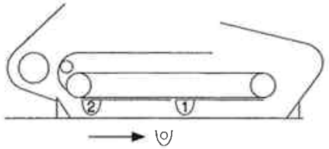
④ The 2nd original is slid over the scanner and exposed.



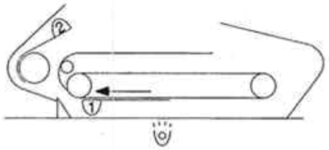
⑤ The 2nd original stops at a point where stream reading ends. The scanner returns to home position.



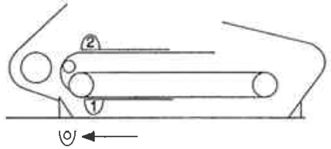
⑥ The scanner performs normal scanning to expose the original for the remaining number of copies.



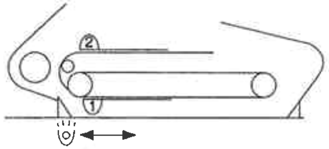
⑦ The scanner moves to the center of the copyboard and is locked in position by the scanner locking solenoid.



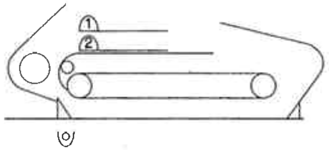
⑧ When the RDF has sent the image leading signal for the 1st original, the original is slid over the scanner and is exposed.



⑨ The 1st original stops at a point where stream reading ends. The scanner returns to home position.



⑩ The scanner makes normal scanning and exposes the original for the remaining number of copies.



⑪ The 1st original is delivered.

Figure 3-213

7. Scanner Motor Control Circuit

a. Outline

Figure 3-214 shows the circuit that controls the scanner motor, and the circuit has the following functions:

① Turning on and off the scanner motor.
② Controlling the rotation direction of the scanner motor.
③ Controlling the rotation of the scanner motor to a specific speed.

b. Stopping the Motor

When the scanner motor drive control signal (M3ON) goes '0', the drive circuit turns OFF and the motor remains stationary.

c. Controlling the Forward Movement of the Scanner

When the scanner motor drive control signal (M3ON) goes '1' and the scanner forward signal (M3F/R) goes '0', the drive signal turns ON and the scanner motor rotates clockwise, thereby moving the scanner forward.

d. Controlling the Reverse Movement of the Scanner

When the scanner motor drive signal (M3ON) goes '1' and the scanner forward signal (M3F/R) goes '1', the drive circuit turns ON, thereby moving the scanner motor counterclockwise.

e. Controlling the Rotation of the Scanner Motor to a Specific Speed

The microprocessor on the DC controller PCB generates the scanner speed signal (M3FS) to the scanner motor driver PCB according to the selected reproduction ratio.

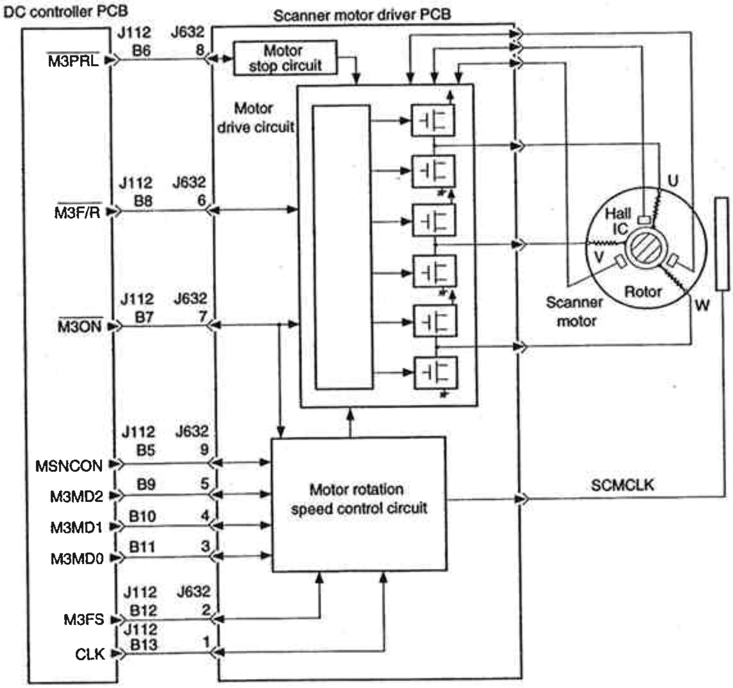

DC controller PCB
Scanner motor driver PCB
J112
J632
B6
8
M3PRL
Motor stop circuit
Motor drive circuit
J112
J632
B8
6
M3F/R
J112
J632
B7
7
M3ON
J112
J632
B5
9
MSNCON
B9
5
M3MD2
B10
4
M3MD1
B11
3
M3MD0
J112
J632
B12
2
M3FS
J112
B13
1
CLK
Motor rotation speed control circuit
SCMCLK
U
Hall IC
V
Rotor
W
Scanner motor

Figure 3-214

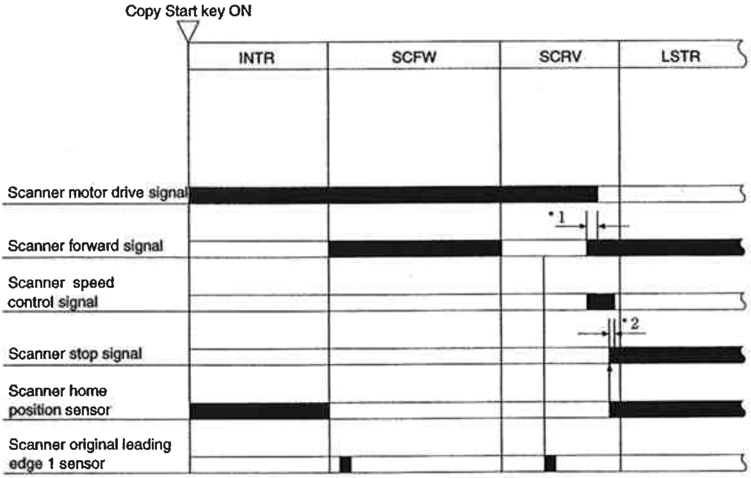
The rotation speed control circuit compares the scanner speed signal and the clock pulse (SCMCLK) generated by the scanner motor and sends control signals to the motor drive circuit according to the difference.

The motor drive circuit does not change the voltage applied to the motor but rather turns ON and OFF the power to the motor at short intervals to control the speed of rotation. (The voltage is maintained constant, but the ON/OFF periods are varied.)

Since the rotation speed of the scanner motor must be varied to suit the selected reproduction ratio, the reproduction ratio selection signal (M3MD0, 1, 2) is generated by the DC controller PCB as shown in Table 3-203.

MSMD2	MSMD1	MSMD0	One-sidey copy
0	0	0	204 ~172
0	0	1	171 ~144
0	1	0	143 ~120
0	1	1	119 ~100
1	0	0	99 ~ 79
1	0	1	78 ~ 62
1	1	0	61 ~ 49
1	1	1	Scanner reverse movement

Table 3-203


Copy Start key ON
INTR
SCFW
SCRV
LSTR
Scanner motor drive signal
Scanner forward signal
Scanner speed control signal
Scanner stop signal
Scanner home position sensor
Scanner original leading edge 1 sensor
*1
*2

*1: Scanner slow-down braking.
*2: Scanner stop braking.

Figure 3-215

III. IMAGE FORMATION

A. Controlling the Surface Potential of the Drum

1. Outline

The quality of copy images are affected by changes in the latent image; the changes in latent images in turn are affected by the following:

① Changes in the sensitivity of the drum.
② Changes in the discharging by the primary charging assembly.
③ Changes in the degree of exposure.

In general, these changes are caused by changes in the site of installation (temperature, humidity) and deterioration/soiling of parts.

To ensure stable latent images against such changes, the NP6050 is equipped with a mechanism that controls the surface potential of the drum.

The NP6050's potential sensor is used to measure the dark area potential (VD) and the light area potential (VL1) of the surface of the drum, and the data is used to make corrections so that these potentials are as close to the target values as possible.

Using such correction conditions, the light area potential (VL2) for the developing bias is measured for determination of the DC component of the developing bias.

2. Control Method

See Tables 3-301 and -302 for the number of measurement corrections of potential control and the timing of potential control in each mode.

	Corrections	Measurements
V_D	8 (max.)	8 (max.)
V_{L1}	8 (max.)	8 (max.)
V_{L2}	0	1

Table 3-301 Measurement Corrections for Potential Control

Mode	Timing
Text mode	·Once at power-on. ·Once during first copying between 10 min an 60 min after power-on. ·Once during first copying after 60 min.
Photo mode	·Once during first copying in photo mode after power-on.

Table 3-302 Timing of Potential Control

a. Primary Current Control

To measure the dark area potential (VD) for the first time after power-on, a reference current (setting stored in ROM) is sent to the primary charging assembly, and the potential sensor is used to measure the drum surface potential.

The DC controller PCB compares the measurements taken of the drum surface potential and the target potential; if the drum surface potential differs from the target value, the primary charging level control signal (HVTPC) generated by the DC controller PCB is corrected.

In this way, the corrected current is applied to the primary charging assembly by the high-voltage transformer (HVT). The subsequent measurements are made using the previously corrected value as the reference current, thereby speeding up first copy time.

Such measurement and correction are repeated as many as eight times so that the dark area potential (VD) will be as close to the target value as possible. If the potential is not within the allowance after the eighth measurement, the dark area potential will be determined using the eighth correction value.

Note:
If the potential is in excess of the control range of the target value after measuring the potential eight times, the notation '1' will be indicated for 'PLMT' (upper limit flag of the primary current value) in service mode (*1*).

Reference:
Potential control may be disabled by 'POCNT' (display mode; *4*). When done, the primary current value will be 1000 µA in text mode and 800 µA in photo mode.

b. Controlling the Intensity of the Scanning Lamp

To measure the light-area potential for the first time after power-on, the reference ON voltage (setting stored in ROM) is applied to the scanning lamp.

In response, the scanning lamp exposes the standard white plate so that the reflected light is projected to the drum.

The potential of the surface of the drum exposed to the light is measured by the potential sensor, and the data is sent to the DC controller PCB.

The DC controller PCB compares the measurement and the target value; if the measurement differs from the target value, the intensity adjustment signal (LINT) generated by the DC controller is corrected.

The subsequent measurements are taken using the previously corrected value as the reference voltage, thereby speeding up the first copy time.

The corrected voltages are applied to the scanning lamp by the lamp regulator.

Such measurement and correction are repeated as many as eight times so that the light area potential (VL1) will be as close to the target value as possible. However, if the measurement does not fall within the allowance after the eighth measurement, the eighth correction value will be used to determine the intensity of the scanning lamp.

Note:
If the measurement is in excess of the control range of the target value after measuring the potential eight times, the notation '1' will be indicated for 'LLMT' (upper limit flag of the lamp ON voltage) in service mode (display mode; *1*).

c. Controlling the Developing Bias

The light area potential (VL2) for the developing bias is based on the measurements taken of the drum surface potential occurring when the scanning lamp is turned ON using the final intensity adjustment signal value obtained during VL1 control.

Using the measurement potential, the DC controller PCB controls the developing bias DC level control signal (DEVDC), ultimately controlling the DC bias to be applied to the developing cylinder by the high-voltage transformer.

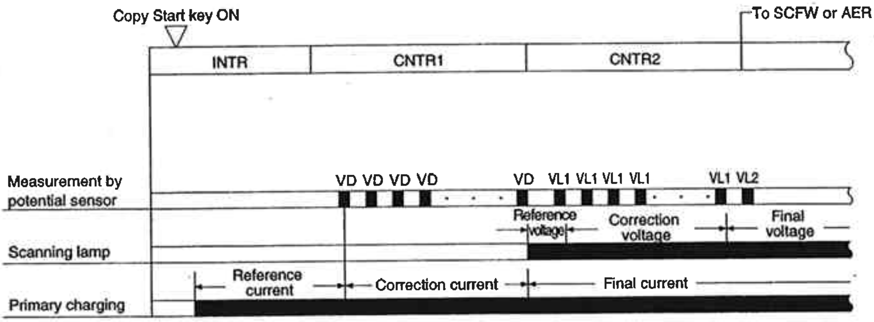

Copy Start key ON
To SCFW or AER
INTR
CNTR1
CNTR2
Measurement by potential sensor
VD VD VD VD
VD VL1 VL1 VL1 VL1
VL1 VL2
Reference voltage
Correction voltage
Final voltage
Scanning lamp
Reference current
Correction current
Final current
Primary charging

Figure 3-301

VL2 is determined in the following sequence:

1. The lamp is turned ON at 52.1 V, thereby exposing the standard white plate to read the drum potential (VL1).
2. The lamp ON voltage is controlled so that VL1 is 170 V.
3. The ON voltage for the white background of the original is obtained by adding 5.1 V to the ON voltage of VL1.

As such, the value 5.1 V is the result of converting the difference between the intensity used to expose the standard white plate and the intensity representing the white background of the original.

3. Potential Detection Circuit

Figure 3-302 is a cross section of the potential sensor. Figure 3-303 is a block diagram of the potential detection circuit.

The charges which are equivalent to the drum surface potential induce alternating current signals whose amplitude represents the difference in potential between the drum surface potential and the potential sensor.

These alternating current signals are amplified by the pre-amplifier circuit of the potential sensor and are then sent to the band path filter.

The band path filter removes the electrical noise from the alternating current signals from the pre-amplifier circuit of the sensor and further amplifies the voltage of the signals for the sync clamp circuit.

The alternating current signals sent by the sync clamp circuit by means of the sync signal from the sync adjustment circuit are converted into direct current signals and then are sent to the error amplifier circuit, where they are converted into direct current signals that represent the difference in potential between the potential sensor and the drum surface potential, thereby allowing the identification of the difference as being positive or negative.

These signals are used to vary the output of the high-voltage generator circuit between 0 and 750 V (max.) so that the drum surface potential is identical with the potential measured by the potential sensor.

The other outputs of the high-voltage generator circuit are sent to the level shift circuit through the 1/300 transformer circuit.

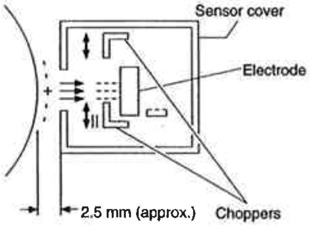

Sensor cover
Electrode
+
I
II
2.5 mm (approx.)
Choppers

Figure 3-302 Sensor Cross Section

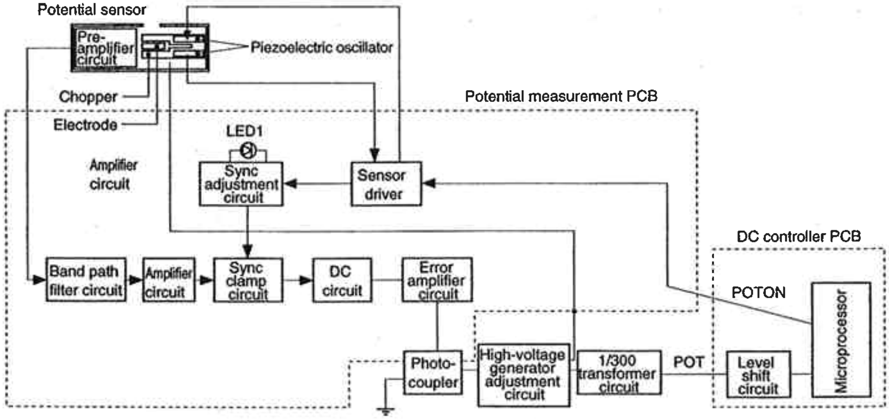

Potential sensor
Pre-amplifier circuit
Piezoelectric oscillator
Chopper
Electrode
Potential measurement PCB
LED1
Amplifier circuit
Sync adjustment circuit
Sensor driver
DC controller PCB
Band path filter circuit
Amplifier circuit
Sync clamp circuit
DC circuit
Error amplifier circuit
POTON
Microprocessor
Photo-coupler
High-voltage generator adjustment circuit
1/300 transformer circuit
POT
Level shift circuit

Figure 3-303

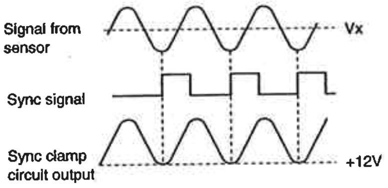

Signal from sensor
Vx
Sync signal
Sync clamp circuit output
+12V

Figure 3-304 Surface Potential Higher than the Sensor Bias

Reference:

The letter F of F30V stands for "floating," and the reference line of the power supply is not grounded (i.e., not 0 V).

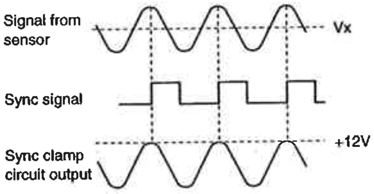

Signal from sensor
Vx
Sync signal
+12V
Sync clamp circuit output

Figure 3-305 Surface Potential Lower than the Sensor Bias

a. Making Checks

① Checking if LED1 is ON

Normally, LED1 turns ON when the main motor rotates.

If it does not turn ON, suspect a fault in the potential measuring unit.

Reference:

If LED1 is ON, the potential sensor is likely to be functioning normally.

② Using Check Pins

Use J127-1 and J127-2 on the DC controller PCB to check the condition of the potential measuring unit. (For details, see "Zero Level Check" in Chapter 7.)

Note:

The sensor and the potential measurement PCB must be adjusted to high precision as a pair, making adjustment in the field not possible. As far as service parts are concerned, the sensor and the potential measurement PCB are treated as a single unit and referred to as a "potential measurement unit."

Caution:

Do not touch the variable resistor on the potential measurement PCB in the field.

B. Controlling the Scanning Lamp Intensity

1. Outline

Figure 3-306-1 shows the circuit used to control the intensity of the scanning lamp, and the circuit has the following functions:

① Turning ON and OFF the scanning lamp.

② Controlling the intensity of the scanning lamp.

- Maintains the intensity to a specific level against changes in the voltage of the power supply.
- Controls the intensity to suit the sensitivity of the drum.
- Controls the intensity to suit the density of the originals (AE control).

③ Checks the activation of the scanning lamp.

2. Operations

a. Turning ON and OFF the Scanning Lamp

When LAON (scanning lamp ON signal) is '0', the output of the differential amplification/potential control circuit goes '0', keeping the arc circuit from turning ON and, thereby, not supplying power to the scanning lamp (LA1).

When LAON goes '1', the output of the differential amplifier/phase control circuit goes '1', causing the arc circuit to turn ON and, thereby, supplying power to the scanning lamp (LA1).

b. Controlling the Intensity of the Scanning Lamp

The intensity of the scanning lamp is increased or decreased by controlling the supply voltage to the scanning lamp according to the intensity adjustment signal (LINT) from the DC controller PCB.

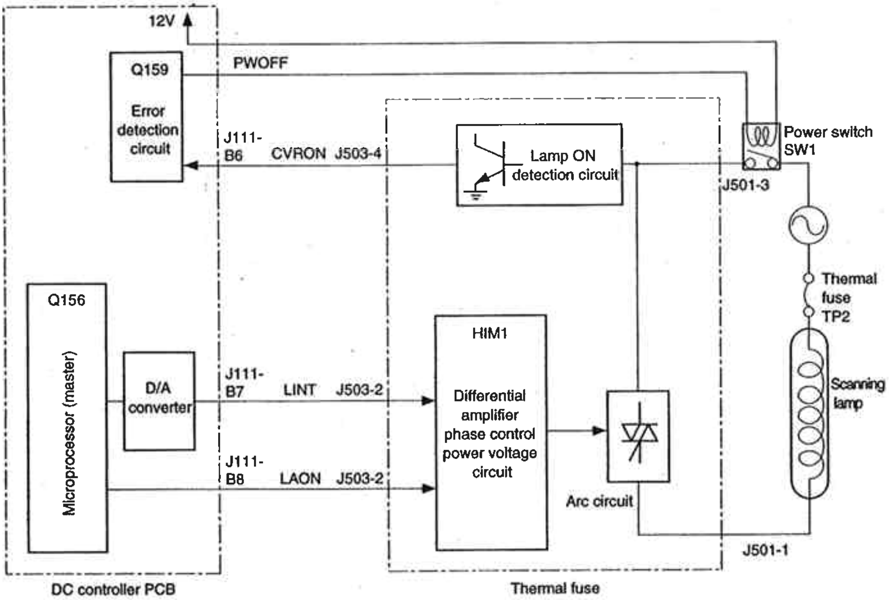

12V
Q159
Error detection circuit
PWOFF
J111-B6
CVRON
J503-4
Lamp ON detection circuit
Power switch SW1
J501-3
Thermal fuse TP2
Scanning lamp
Q156
Microprocessor (master)
D/A converter
J111-B7
LINT
J503-2
J111-B8
LAON
J503-2
HIM1
Differential amplifier phase control power voltage circuit
Arc circuit
J501-1
DC controller PCB
Thermal fuse

Figure 3-306-1

The LINT signal varies the pulse duty between 10% and 57.6% according to the setting of the Copy Density key or the density of the original, sensitivity of the drum and the setting of the intensity control VR so that the supply voltage to the scanner varies between 45 and 65 V (effective value) by way of exerting phase control.

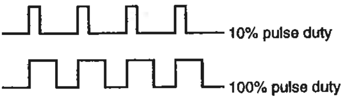


Figure 3-306-2

c. Detecting the Activation of the Scanning Lamp

The activation detection signal generates the ON detection signal (CVRON) at all times as long as the scanning lamp remains ON. The CVRON signal is sent to the error detection circuit of the DC controller PCB. If the lamp ON signal (LAON) goes '0' because of a short circuit or the like in the activation circuit and the scanning lamp turns ON, the DC controller PCB causes the PWOFF signal to go '0'. This condition turns OFF the relay in the power switch to turn OFF the power switch (SW1), thereby cutting off the AC power to the lamp regulator.

3. Automatic Exposure Control (AE)

The NP-6050 is equipped with an automatic exposure function that automatically controls the intensity of the scanning lamp according to the density of the original.

When copies are made in AE mode, copies free of fogging may be obtained without having to adjust the copy density for different originals. The lamp intensity controlled in AE mode is indicated by the copy density indicator on the control panel.

The NP6050's AE mode is either AE mode by the copier or AE mode by the RDF. When an original is set in the RDF, the RDF's AE mode is used. However, if paper is manually inserted while using the RDF, the copier's AE mode will be used.

a. Copier's AE Mode (CMAE)

During AE rotation (AER), the scanner is moved forward 120 mm while keeping the scanning lamp ON; when the scanner moves in reverse, the drum surface potential corresponding to the four points on the copyboard is measured, and the measurements are sent to the DC controller PCB.

The DC controller PCB computes the average from the surface potential measurements to determine the intensity of the scanning lamp for copying.

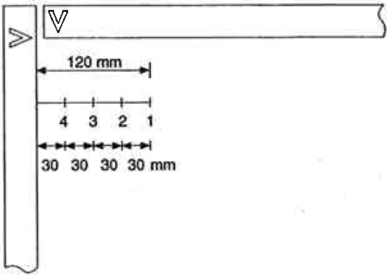


Figure 3-307

b. RDF's AE Mode (RFAE)

The RDF is equipped with an AE sensor in its original feeding path for measurement of the density of originals while they are moved.

This AE sensor is a reflecting type sensor, and the light of two LEDs reflected by the original is measured by a photodiode (Figure 3-308).

The AE sensor 1 (S7) is used for left pick-up, and the AE sensor 2 (S33) is used for right pick-up (Figure 3-308).

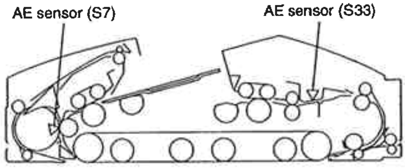


Figure 3-308

The density of an original is measured by the RDF in reference to the five points shown in Figure 3-309, and the measurements are communicated to the copier's DC controller PCB, which determines the intensity of the scanning lamp for copying based on the measurements. The points of measurement differ between right pick-up and left pick-up.

Figure 3-310 shows the changes in the intensity of the scanning lamp in relation to differing densities of originals. If the density of an original is lower (darker) than that of the Test Sheet and higher (lighter) than that of a newspaper, the intensity of the scanning lamp varies between F5 and F9 with reference to the copy density indications. If the original is lighter than the Test Sheet, the intensity will be equivalent to F5; if it is darker than an newspaper, the intensity will be equivalent to F9 for making copies.

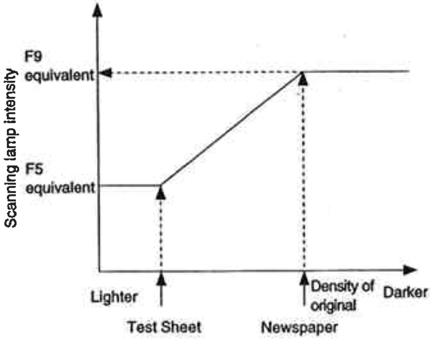
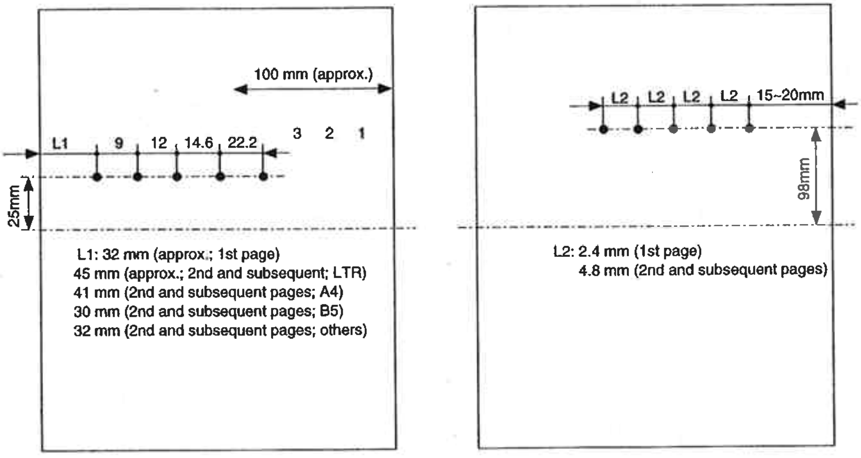


Figure 3-310


100 mm (approx.)
L1
9
12
14.6
22.2
3
2
1
25mm
L1: 32 mm (approx.; 1st page)
45 mm (approx.; 2nd and subsequent; LTR)
41 mm (2nd and subsequent pages; A4)
30 mm (2nd and subsequent pages; B5)
32 mm (2nd and subsequent pages; others)
L2
L2
L2
L2
15~20mm
98mm
L2: 2.4 mm (1st page)
4.8 mm (2nd and subsequent pages)

← RDF feeding direction
(a) Left Pick-Up

RDF feeding direction →
(b) Right Pick-Up

Figure 3-309 Points of Measurement on an Original

4. Check Points

a. Checking the Voltage of J111-B8 (LAON)

Check to make sure that the voltage between J111-B8 and J111-B5 (GND) on the DC controller PCB is about 5 V while the scanner is moving forward and is 0 V during initial rotation, while the scanner is moving in reverse, and during last rotation.

b. Intensity/AE Adjustment

Table 3-303 is a list of items that may be adjusted using the scanning lamp intensity control circuit.

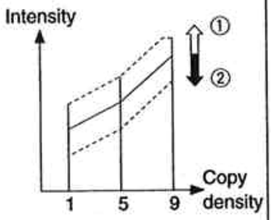
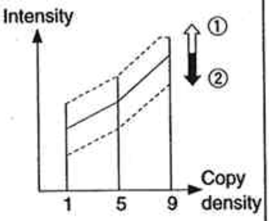
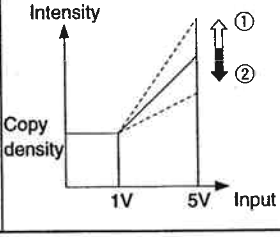
Service mode	Function	Adjustment	Remarks
3 LIGHT _ 5 LIGHT 5P	Adjusts the optimum exposure for potential control (intensity adjustment for copy density 5)		① If the setting is increased in service mode,the intensity during copying increases, decreasing the copy density. ② If the setting is decreased in service mode,the intensity during copying decreases, increasing the copy density.
3 GLEAM _ 5	Adjusts the optimum exposure for non-potential control (intensity adjustment for copy density 5)		① If the setting is increased in service mode,the intensity during copying increases, decreasing the copy density. ② If the setting is decreased in service mode,the intensity during copying decreases, increasing the copy density.
3 AE _ SLOP	AE slope		① If the setting is increased in adjustment mode, copies of a newspaper will be darker. ② If the setting is decreased in adjustment mode, copies of a newspaper will be lighter.

Table 3-303

C. Controlling the Blank Exposure Lamp (LEDs)

1. Outline

The blank exposure lamp is a LED array consisting of 134 LEDs.

All 134 LEDs turn ON when the blank exposure lamp ON signal (BLKON) goes '0' while the drum is rotating to prevent adhesion of unwanted toner on the photosensitive drum. (This does not apply while an original is exposed or during potential control and AE measurement.) The six LEDs at the rear and the six LEDs at the front are kept ON at all times while the drum is rotating.

2. Controlling the Activation in Reduce Mode

When an original is being exposed while making a reduced copy, as many LEDs (rear) as corresponding to the ratio of reduction are turned ON to black out (white out) the non-image area.

The LEDs at the front are also turned ON to suit the copy paper size.

3. Controlling the Activation in Direct Mode

When an original is exposed in Direct mode, as many LEDs (both rear and front) as corresponding to the copy paper size are turned ON to black out (white out) the non-image area.

If a non-default ratio is selected or when making copies using sheets of a default size in Direct mode, a non-image width is created (Table 3-304) at the rear and the front (standard frame erasing).

The non-image width may be set to 0 mm in service mode.

4. Controlling the Activation in Sheet/Original Frame Erasing Mode

In sheet frame erasing mode, LEDs are turned ON so that toner will not deposit along the sides of the copy (about 7 mm wide; the width will not vary in relation to the selected reproduction ratio).

Reference:

In multifeeder mode, copy paper size may be set or left "free." If you have set a size, frame erasing will be executed according to that size; if free is valid, frame erasing is controlled based on the maximum size (297 x 432 mm).

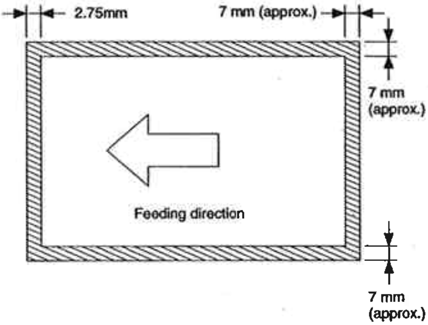


Figure 3-311

5. Controlling the Activation in Original Frame Erasing Mode

In original frame erasing, LEDs are turned ON so that a margin (about 2 mm) along the sides in relation to the original are kept free of toner.

Paper size	Non-image width
A4 horizontal, B5 horizontal, B4, A3, LTR horizontal	2.75 ± 2.3mm
Other sizes	3.0 ± 2.55mm

Table 3-304

6. Controlling the Activation in Book Frame Erasing Mode

In book frame erasing mode, LEDs are turned ON so that a margin (about 20 mm, standard) along the center of the specified size will be free of toner. The width may be adjusted to 20 ±20 mm in service mode.

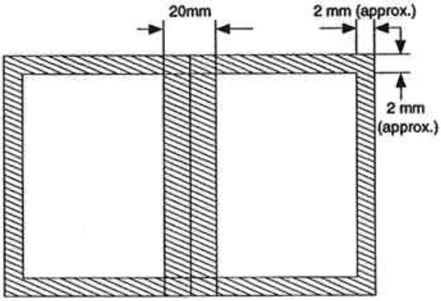

20mm
2 mm (approx.)
2 mm (approx.)

Figure 3-312

7. Controlling the Activation in Hole Image Erasing Mode

Hole image erasing mode is provided to prevent black dots from appearing on copies made of an original with holes. LEDs are turned ON so that a width covering such holes will be free of toners.

The width may be varied between 1 and 20 mm.

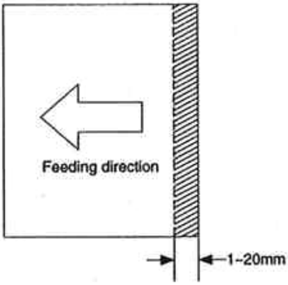

Feeding direction
1-20mm

Figure 3-313

8. Controlling the Activation of AE Mode

In AE mode, the surface potential of the drum is measured, requiring that LEDs be turned OFF.

Since only part of the photosensitive drum is measured for surface potential, however, only the LEDs shining such areas are turned OFF and other LEDs are turned ON.

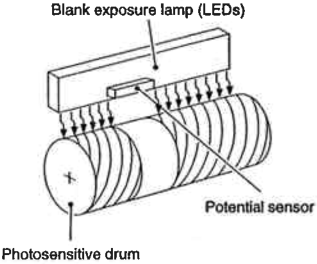

Blank exposure lamp (LEDs)
Potential sensor
Photosensitive drum

Figure 3-314

D. Controlling the Primary/Transfer Corona Current

1. Outline

Figure 3-315 shows the circuit that controls the primary/transfer corona, and the circuit has the following functions:

① Turning ON and OFF the primary corona current.

② Controlling the primary corona current to a specific level.

③ Turning ON and OFF the transfer corona.

④ Controlling the transfer corona to a specific level.

2. Controlling the Primary Corona Current

The DC controller PCB compares the drum surface potential VD obtained by the potential detection circuit against the target potential; if it is different from the target potential, the signal used to control the primary corona current generated by the DC controller PCB is corrected.

The corrected signal is converted to an analog value (HVTPC signal) by the D/A converter circuit and sent to the high-voltage transformer, thereby controlling the primary corona current.

The primary corona current output is turned ON and OFF by the DCON signal. The output of the primary corona current is controlled by the HVTPC signal.

If the HVTPC signal is about 3 to 11 V or less, the output of the primary corona current turns ON; it turns OFF when the signal is about 12 V or more.

a. Primary Corona Current Output OFF
   HVTPC is about 12 V.
   DCON is '0'.
      The variable width pulse oscillator circuit turns OFF.
         The drive circuit turns OFF.
            The primary high-voltage transformer turns OFF.

b. Primary Corona Current Output ON
   HVTPCB is less than about 11 V.
   DCON is '1'.
      The variable width pulse oscillator circuit turns ON.
         The comparator circuit turns ON.
            The drive circuit turns ON.
               The primary high-voltage transformer turns ON.

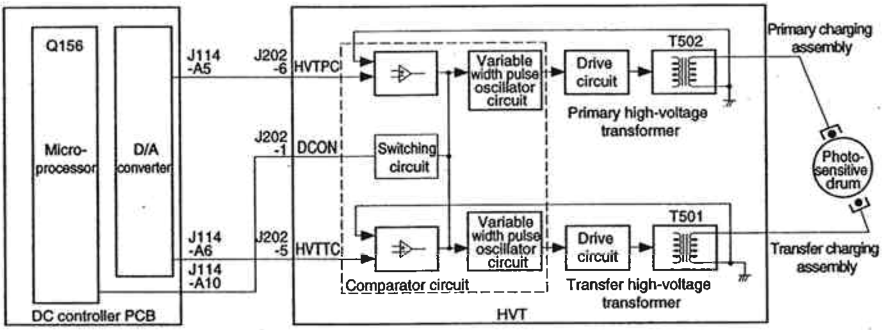

Q156
Micro-processor
D/A converter
DC controller PCB
J114 -A5
J202 -6
HVTPC
J202 -1
DCON
J114 -A6
J202 -5
HVTTC
J114 -A10
Switching circuit
Variable width pulse oscillator circuit
Variable width pulse oscillator circuit
Comparator circuit
Drive circuit
Drive circuit
T502
T501
Primary high-voltage transformer
Transfer high-voltage transformer
HVT
Primary charging assembly
Photo-sensitive drum
Transfer charging assembly

Figure 3-315

In this condition, the high-voltage transformer sends high voltage that suits the output of the primary charging level control signal (HVTPC) to the primary charging assembly.

If an excess corona current flows from the primary charging assembly because of changes in the environment, the return current to the comparator circuit increases, causing the output to decrease. This in turn decreases the corona current from the primary charging assembly so that the current is controlled to a specific level at all times.

In the photo mode, a target value lower than the dark area potential (VD) target value used for normal copying mode by about 80 V is used. As such, potential control is executed during copying in photo mode for the first time after the power switch is turned on to control the primary corona current.

3. Controlling the Transfer Corona Current

The transfer efficiency representing the transfer of toner from the photosensitive drum to copy paper is affected by changes in the environment (temperature, humidity).

To limit changes occurring in the density caused by changes in the environment, the transfer current is varied according to the temperature and humidity measured by the environment sensor.

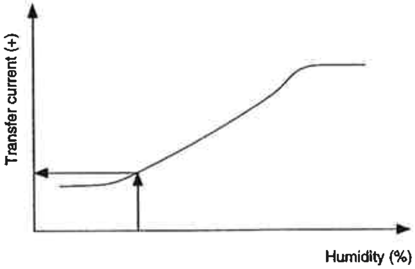


Figure 3-316

The transfer corona current output is turned ON and OFF by the high-voltage DC remote signal (DCON). Further, the output level of the transfer current is controlled by the transfer charging level control signal (HVTTC).

When the HVTTC signal is about 3 V or more and less than 11 V, the output of the transfer corona current turns ON; it turns OFF when the signal is about 12 V or more.

a. Transfer Corona Current OFF
   HVTTC is about 12 V.
   DCON is '0'.
      The comparator circuit turns OFF.
         The variable width pulse oscillator circuit turns OFF.
            The drive circuit turns OFF.
               The primary high-voltage transformer turns OFF.

b. Transfer Corona Current Output ON
   HVTTC is less than about 11 V.
   DCON is '1'.
      The comparator circuit turns ON.
         The variable width pulse oscillator circuit turns ON.
            The drive circuit turns ON.
               The primary high-voltage transformer turns ON.

In this condition, the high-voltage transformer sends high voltage that suits the output of the transfer charging level control signal (HVTTC) to the transfer charging assembly.

If an excess corona current flows from the transfer charging assembly because of changes in the environment, the return signal to the comparator circuit increases, and the output decreases, causing the corona current from the transfer charging assembly to decrease, thereby controlling the current to a specific level at all times.

E. Controlling the Separation/ Pre-Transfer Corona Current

1. Outline

The circuit shown in Figure 3-317 is the circuit that controls the separation corona current and the pre-transfer corona current, and the circuit has the following function:

① Turning ON and OFF the separation/pre-transfer corona current.
② Switching the separation corona current.
③ Controlling the separation corona current to a specific level.
④ Switching the pre-transfer corona current.
⑤ Controlling the pre-transfer corona current to a specific level.

The DC component of the separation corona current and the pre-transfer corona current is controlled to a specific level by collecting a sample signal from the secondary side of the high-voltage transformer (HVT) to eliminate the effects of changes in the environment on corona discharge. (The AC transformer is controlled for its voltage.)

The surface potential of the drum during copying is measured, and the measurements are used together with the measurements taken by the environment sensor to vary the separation corona current, thereby limiting the effects of changes in the environment.

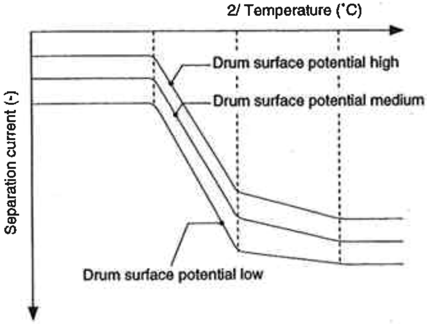


Figure 3-318

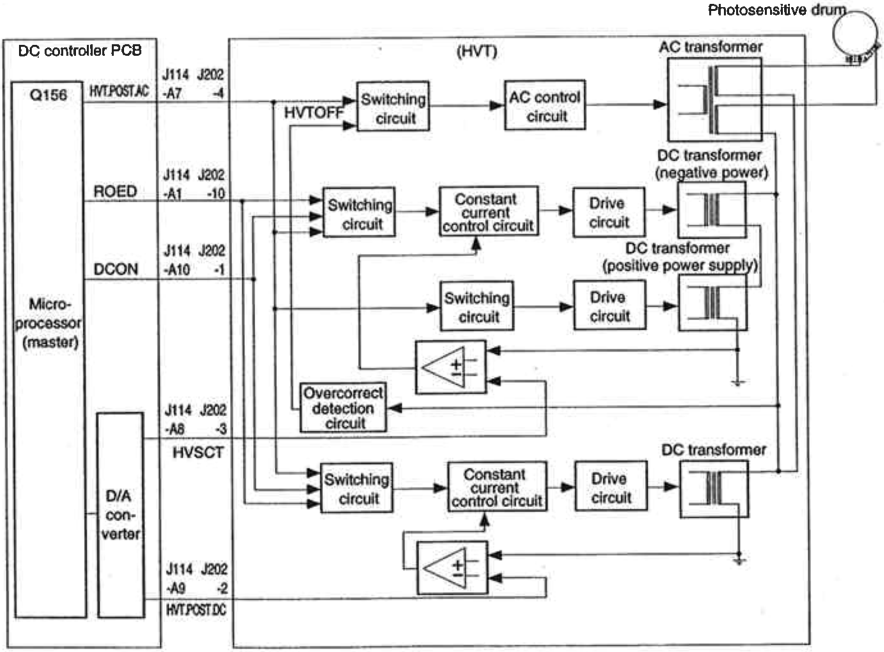

Photosensitive drum
DC controller PCB
(HVT)
AC transformer
Q156
HVT.POST.AC
J114 J202
-A7 -4
HVTOFF
Switching circuit
AC control circuit
DC transformer (negative power)
ROED
J114 J202
-A1 -10
Switching circuit
Constant current control circuit
Drive circuit
DCON
J114 J202
-A10 -1
DC transformer (positive power supply)
Micro-processor (master)
Switching circuit
Drive circuit
+
−
Overcorrect detection circuit
J114 J202
-A8 -3
HVSCT
DC transformer
D/A con-verter
Switching circuit
Constant current control circuit
Drive circuit
+
−
J114 J202
-A9 -2
HVT.POST.DC

Figure 3-317

The corona current is varied to suit the measurements of temperature and humidity taken by the environment sensor, thereby limiting the effects of the environment.

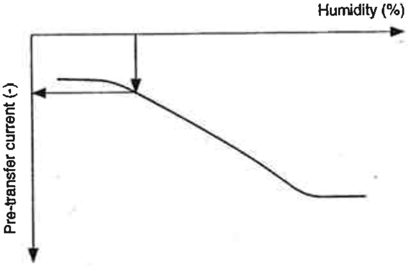


Figure 3-319

2. Turning ON and OFF the Separation/ Pre-Transfer Corona Current

The separation corona current and the pre-transfer corona current are turned ON and OFF by the HVTAC drive signal (HVP.POST.AC), roller electrode drive signal (ROED), and high-voltage DC drive signal (DCON).

3. Separation Corona Current (DC component)

For the output control value, the direct current of the separation corona current (DC component) is varied according to the voltage level (3 to 11 V) of the HVSCT signal.

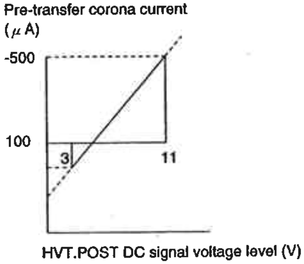


Figure 3-320

4. Pre-Transfer Corona Current (DC component)

The control value of the pre-transfer corona current (DC component) is varied according to the voltage level of the HVP.POST.DC signal.

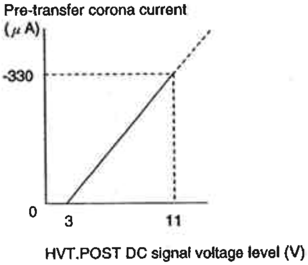


Figure 3-321

5. Controlling the DC Component Overcurrent of the Separation/Pre-Transfer Corona Current

If an overcurrent flows into the separation/pre-transfer charging assembly, the high-voltage transformer stop signal (HVTOFF) is generated to cut off the corona current (DC/AC component) temporarily to the pre-transfer/separation charging assembly.

When the HVOFF signal is generated, the copier continues to operate; application of the corona current will be resumed once the application voltage returns to normal.

If leakage occurs because of a broken charging wire and, as a result, an overcurrent flows to generate the HVTOFF signal, the corona current will not be applied unless the cause is removed.

Note:
Separation jams will be frequent if the corona current output to the transfer/separation charging assembly is stopped because of an overcurrent.
No warning will be issued to the control panel in response to this condition; if separation jams are frequent, check the relevant mechanism.

	Switching signal				Control signal	
Signal* / HVT output	DCON J114-A10	HVT.POST.A C	ACBTP J114-A	ROED J114-A1	HVSTC J114-A8	HVT.POST.D C
Pre-transfer ON	'1'	'1'	'0'	'1'	—	3 ~11V
Pre-transfer OFF	'0'	'0'	'0'	'0'	—	2V
Separation ON	'1'	'1'	'0'	'1'	3 ~11V	—
Separation OFF	'0'	'0'	'0'	'0'	2V	—

* The connector number of the signal name represents the output from the DC controller PCB.

Table 3-305 Combination of Transfer/Separation Signals

F. Developing Assembly and Cleaning Assembly

1. Outline

The developing assembly is driven by engaging and disengaging the drive from the main motor by the developing clutch (CL8).

The cleaning assembly is supplied with drive by the main motor through drum gears.

The toner inside the developing assembly is monitored by the toner level detection circuit; when the level of the toner drops below a specific level, the toner sensor (TS1) causes the message Add Toner to appear on the control panel. Then, copying operation will be forced off after making about 200 copies.

The developing assembly is supplied with toner by the hopper assembly by the work of the hopper motor 1 (M11); the toner inside the hopper assembly is stirred by the hopper motor 2 (M10).

The toner scraped off by the cleaning blade is moved to the rear of the copier and sent to the waste toner case through the waste toner feeding pipe.

The waste toner feeding assembly is equipped with a torque limiter. When the screw becomes clogged with waste toner, the waste toner feeding screw locking detection turns ON to stop the main motor (M1).

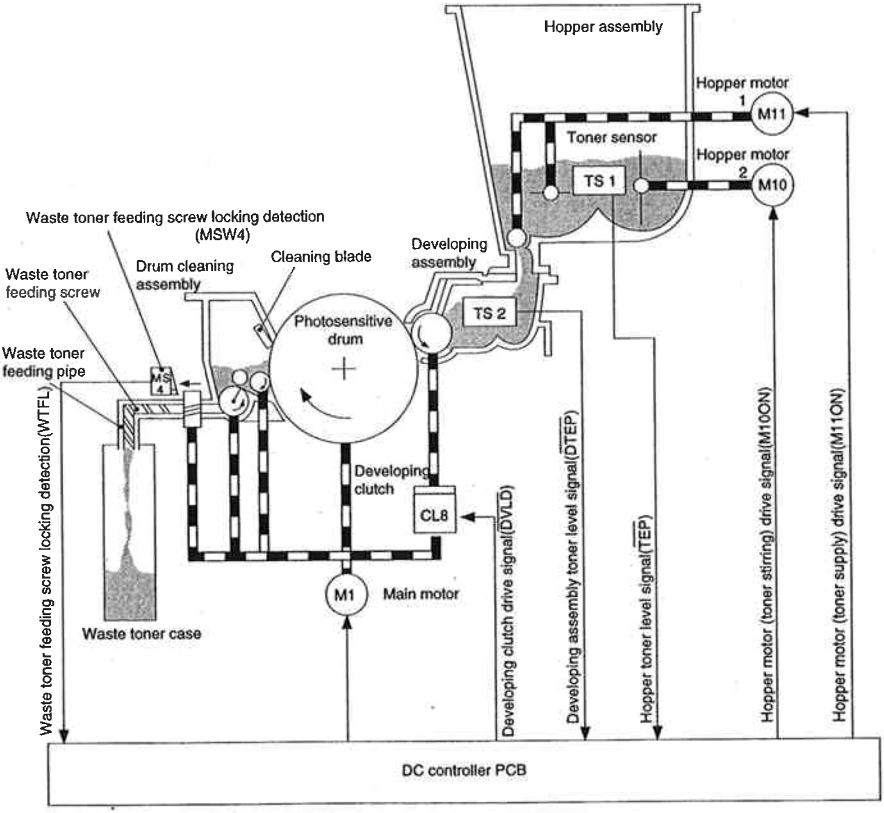

Hopper assembly
Hopper motor 1
M11
Toner sensor
Hopper motor 2
TS 1
M10
Waste toner feeding screw locking detection (MSW4)
Developing assembly
Cleaning blade
Drum cleaning assembly
Waste toner feeding screw
TS 2
Photosensitive drum
Waste toner feeding pipe
MS 4
Waste toner feeding screw locking detection(WTFL)
Developing clutch
CL8
M1
Main motor
Waste toner case
Developing clutch drive signal(DVLD)
Developing assembly toner level signal($\overline{\text{DTEP}}$)
Hopper toner level signal($\overline{\text{TEP}}$)
Hopper motor (toner stirring) drive signal(M10ON)
Hopper motor (toner supply) drive signal(M11ON)
DC controller PCB

Figure 3-322

2. Detecting the Toner Level and Controlling the Supply Operation

The toner inside the developing assembly is monitored by the toner sensor (TS2); when the toner inside the developing assembly drops below a specific level while the developing clutch (CL8) is ON during copying, the developing assembly toner level signal ($\overline{\text{DTEP}}$) goes '0' and the signal is sent to the DC controller PCB.

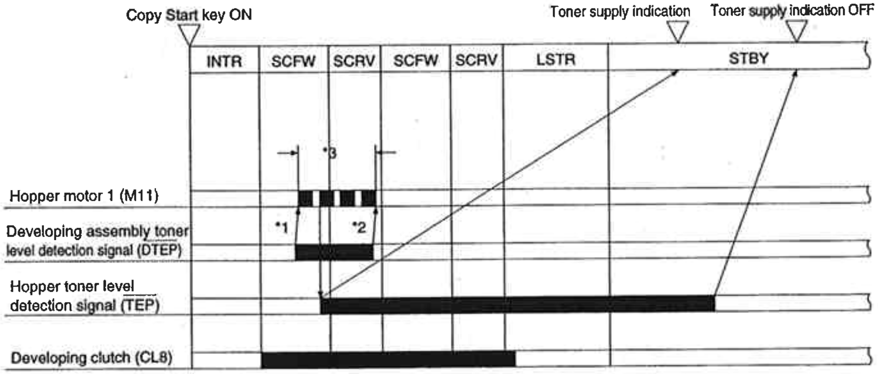
The DC controller generates hopper motor (toner supply) drive signal (M11ON) if it detects the developing assembly toner level signal ($\overline{\text{DTEP}}$) for 0.3 sec or more to supply toner from the hopper assembly.

When the toner inside the developing assembly reaches a specific level and the developing assembly toner level signal $\overline{\text{DTEP}}$ =1 is detected for 0.7 sec or more, the hopper motor (M11) is stopped.

If the toner sensor (TS2) becomes faulty for some reason and if the DC controller PCB detects the developing assembly toner level signal ($\overline{\text{DTEP}}$ =0) for more than 120 sec without an adequate amount of toner inside the developing assembly, 'E202' will be indicated and copying operation will be stopped.

The toner inside the hopper assembly is monitored by the hopper toner sensor ($\overline{\text{TS1}}$) while the hopper motor 1 (M11) is supplying toner or stirring toner.

When the level of toner inside the hopper drops below a specific level, the hopper toner level detection signal ($\overline{\text{TEP}}$) goes '0'; if the DC controller PCB detects this signal for 1 sec or more, it will issue the message Add Toner on the control panel. At this time, the Copy Start key on the control panel will change to red at that time.


Copy Start key ON
Toner supply indication
Toner supply indication OFF
INTR
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
*3
*1
*2
Hopper motor 1 (M11)
Developing assembly toner level detection signal (DTEP)
Hopper toner level detection signal (TEP)
Developing clutch (CL8)

*1 Supply operation will be started if the developing assembly toner level detection signal=0 is detected for 0.3 sec or more.

*2 Supply operation will be ended if the developing assembly toner level detection signal=1 is detected for 0.7 sec or more.

*3 The sequence of toner supply is stopped for 1 sec after driving the hopper for 2.0 sec, and this sequence is repeated.

Figure 3-323

The number of copies valid at this time is stored in RAM on the DC controller PCB. If the hopper toner level detection signal ($\overline{TEP}$=1) is detected for 1 sec or more, the DC controller PCB will assume the presence of toner and clear the counter reading while removing the message Add Toner from the control panel.

Reference:

A piezoelectric oscillator is used inside the developing assembly and the hopper. In the absence of toner, the oscillator oscillates at several kHz, causing the sensor output to be '0'. In the presence of toner, the weight of the toner stops the oscillation of the oscillator, causing the sensor output to be '1'.

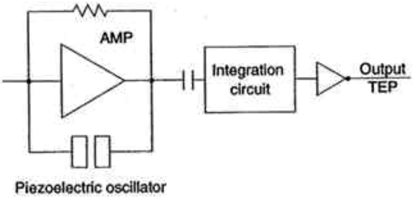


Figure 3-324

Caution:

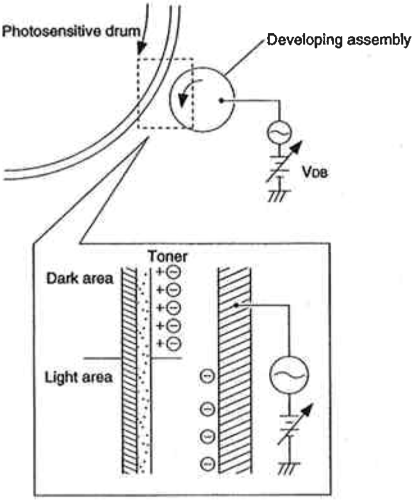
Do not install the developing assembly locking assembly without setting the developing assembly in the copier.
The toner collecting in the path from the hopper to the developing assembly could move astray because of the vibration caused by inspection/repairs work.

3. Controlling the Developing Bias/Roller Electrode

a. Outline

The developing cylinder during copying is given an AC bias and DC bias. The DC bias is a sum of VL2 measured by the potential sensor before starting copying operation and 100 V.

To prevent adhesion of unwanted toner to the photosensitive drum, the DC bias is varied according to the surface potential of the drum.



Bias

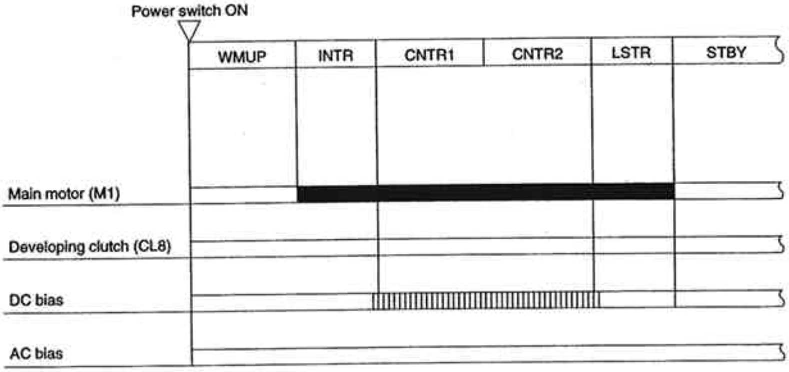
$V_{DB} = V_{L2} + 100\,(V)$

Figure 3-325

Bias	Voltage	Period	Description
DC component	+600V	CNTR1, 2	The surface potential changes at all times. It is therefore measured by the potential sensor and varied to prevent adhesion of unwanted toner to the drum.
	+600V	INTR, AER, LSTR during copying	Prevents adhesion of unwanted toner to the drum.
	V_{L2}+100 [V]	SCFW, SCRV during copying	Prevents fogging of white background.
AC component 1500 Vp-p, 2700 Hz			Executes toner projection.

Table 3-306

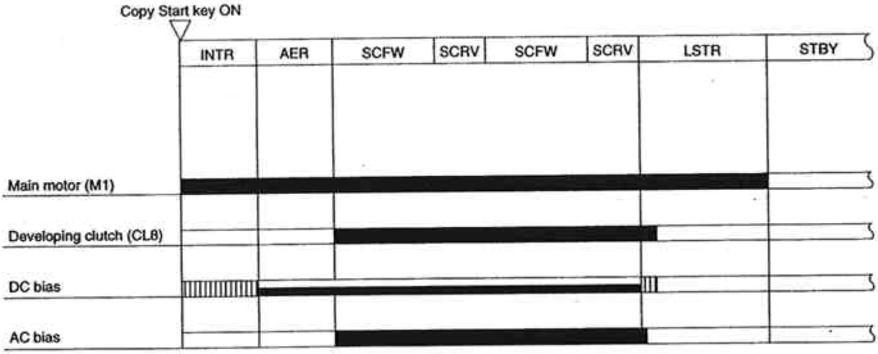
If the surface temperature of the fixing roller is 75°C or less and the ambient temperature is 17°C or more.


Power switch ON
WMUP
INTR
CNTR1
CNTR2
LSTR
STBY
Main motor (M1)
Developing clutch (CL8)
DC bias
AC bias

DC bias: ▥ : +600V

Figure 3-326

Making the 2nd and subsequent copies after 60 min or up to 10 min after power-on


Copy Start key ON
INTR
AER
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
Main motor (M1)
Developing clutch (CL8)
DC bias
AC bias

DC bias: ▥ :+600V
▬ :Potential control value (VL2 + 100 V)

Figure 3-327

Making the 1st copy after 60 min or more or 10 min or more after power-on

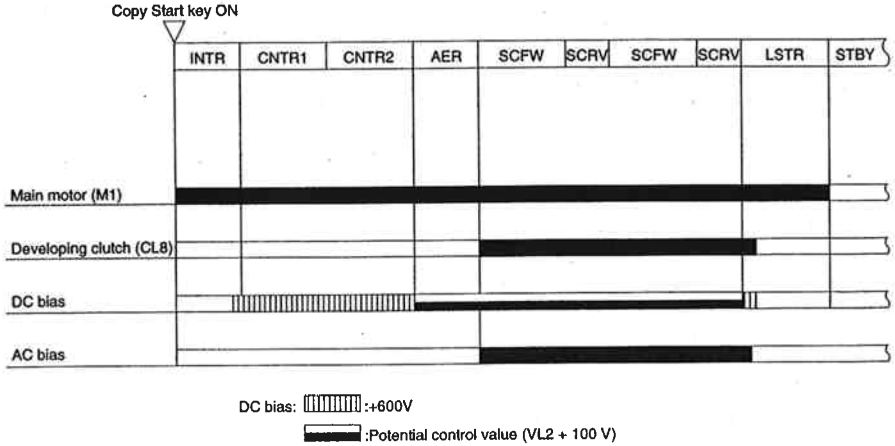

Copy Start key ON
INTR
CNTR1
CNTR2
AER
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
Main motor (M1)
Developing clutch (CL8)
DC bias
AC bias
DC bias: :+600V
:Potential control value (VL2 + 100 V)

Figure 3-328

c. Developing Bias Control Circuit

The circuit that controls the developing bias is equipped with the following functions:

1 Turing the AC bias ON and OFF.

2 Controlling the DC bias to a specific level.

① Turning OFF the AC Bias

The developing bias remote signal ACBTP is '0'.

The AC bias switch circuit turns OFF.

The drive circuit turns OFF.

The AC transformer (T401) output stops.

The above condition stops the AC bias to the developing cylinder.

② Turning ON the AC Bias

The developing bias remote signal ACBTP is '1'.

The drive circuit turns ON.

The AC bias switch circuit turns ON.

The above condition causes the voltage to be increased to 1500 Vp-p and sent to the developing cylinder.

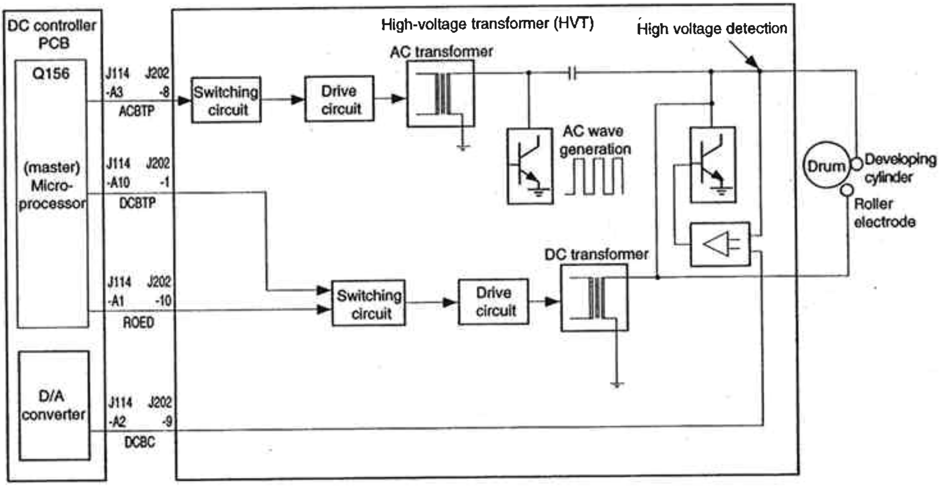

DC controller PCB
Q156
(master) Micro-processor
D/A converter
J114 -A3
J202 -8
ACBTP
J114 -A10
J202 -1
DCBTP
J114 -A1
J202 -10
ROED
J114 -A2
J202 -9
DCBC
Switching circuit
Drive circuit
High-voltage transformer (HVT)
AC transformer
High voltage detection
AC wave generation
DC transformer
Switching circuit
Drive circuit
Drum
Developing cylinder
Roller electrode

Figure 3-329

③ Controlling the DC Bias Voltage to a Specific Level

The voltage level of the DC bias is determined by the level of the signal (DCBC) from the DC controller PCB.

- The high-voltage DC remote signal (DCBTP) is '1'.
- The roller bias remote signal (ROED) is '1'.
- The developing DC control signal DCBC is 3 V or more or less than 12 V, and the AC bias switch circuit turns ON.

Under the above condition, the DC bias output will increase if the signal (DCBC) from the DC controller PCB increases.

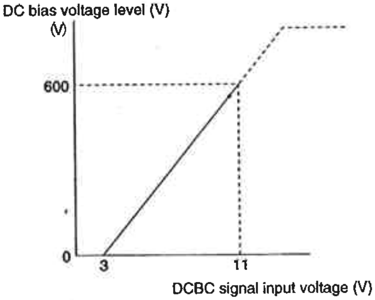


Figure 3-330

d. Roller Electrode Bias Control Circuit

The circuit used to control the roller electrode bias is provided with the following functions:

1 Turning ON the Roller Electrode

① Roller Electrode ON Signal

- When the high-voltage DC remote signal (DCBTP) is '1' and the roller bias signal (ROED) is '1', the switching circuit turns ON and the high-voltage transformer drive circuit turns ON.

The DC transformer T402 turns ON to supply a bias of about 1000 V to the roller electrode. (The DC bias is not subjected to constant voltage control.)

② Turning OFF the Roller Electrode

- When the high-voltage DC remote signal (DCBTP) is '0' and the roller bias signal (ROED) is '0', the switching circuit turns OFF and the high-voltage transformer drive circuit turns OFF. The DC transformer T402 turns OFF to deprive the roller electrode of the bias.

	Switching signal				Control signal
Signal* / HVToutput	DCBTP J114-A10	ACBTP J114-A3	ROED J114-A1	ACON J114-7	DCBC J114-A2
DC bias ON	'1'	'1'	'1'	'0'	3~11V
DC bias OFF	'0'	'0'	'0'	'0'	2V
Roller bias ON	'0'	'0'	'1'	'0'	—
Roller bias OFF	'0'	'0'	'0'	'0'	—

* The connector number of the signal name represents the output from the DC controller PCB.

Table 3-307 Combination of Developing DC/Roller Electrode Bias Output Signals

4. Detecting the Locking of the Waste Toner Feeding Screw

If, for some reason, the waste toner pipe becomes clogged with waste toner and the waste toner feeding screw is prevented from rotation, the waste toner can fall out of the pipe.

To prevent such a problem, a feeding screw locking detection mechanism is provided.

The gear A (figure 3-331) for the waste toner feeding screw is subjected to a force in the direction of the axis when the feeding screw gets locked and is moved along the axis.

The movement of the gear A is monitored by the waste toner feeding screw locking detection switch (MS4).

When MS4 is pushed by the gear A, the main motor (M1) stops, and an error indication (E013) will be indicated on the control panel.

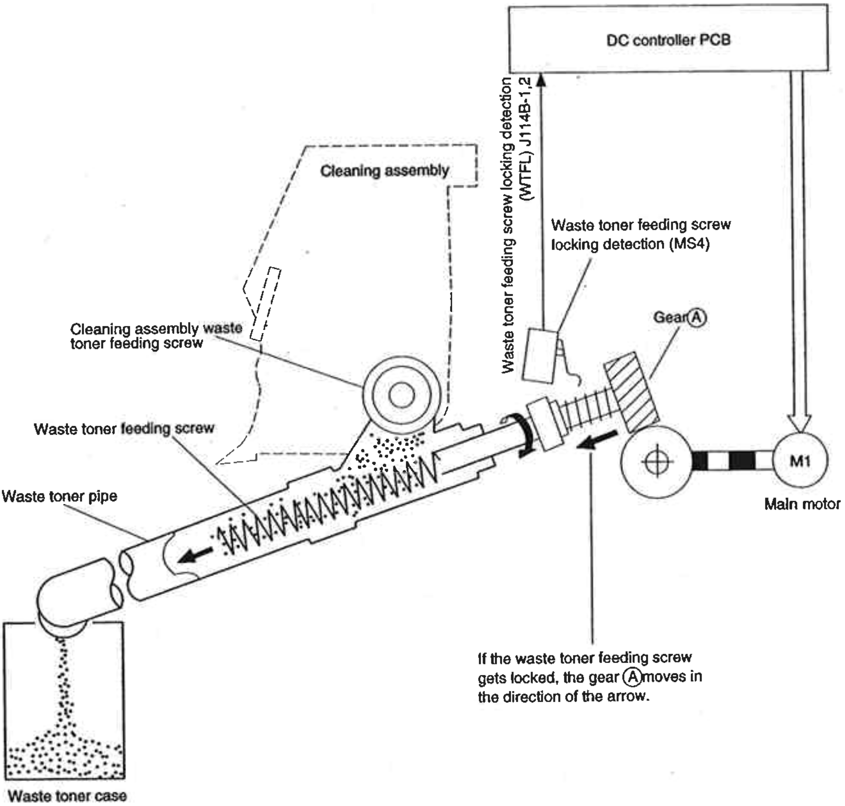

DC controller PCB
Waste toner feeding screw locking detection (WTFL) J114B-1,2
Cleaning assembly
Waste toner feeding screw locking detection (MS4)
Gear Ⓐ
Cleaning assembly waste toner feeding screw
Waste toner feeding screw
Waste toner pipe
M1
Main motor
If the waste toner feeding screw gets locked, the gear Ⓐ moves in the direction of the arrow.
Waste toner case

Figure 3-331 (rear view)

G. Drum Heater Circuit

1. Outline

The inside of the photosensitive drum is equipped with a drum heater (60 W), and the heater serves to keep the surface temperature of the drum at a specific level at all times.

The AC power is supplied to the drum heater through the power switch (SW1), door switch (SW2), drum heater switch (SW3), and AC driver.

When the drum heater switch is ON and the door switch (SW2) is ON, AC power is supplied regardless of whether the power switch (SW1) is ON or OFF. If the drum heater switch (SW3) is OFF, AC power is supplied to the drum heater only if the power switch is ON.

The drum heater drive circuit turns OFF when the drum heater drive signal (DHRD) generated by the DC controller PCB goes '0', supplying the drum heater with half-wave AC power.

If the drum heater drive signal (DHR) generated by the DC controller PCB is '1', on the other hand, the drum heater is supplied with full-wave AC power.

The relationship between the state of the copier and the ON/OFF state of the drum heater circuit of the AC driver is as shown in Table 3-308.

Copier state	Drum heater drive circuit
Power plug is connected and power switch is OFF	OFF (supplies half-wave AC power)
During copying	
During standby	ON (supplies full-wave AC power)

Table 3-308

The temperature of the drum is monitored at all times by the thermistor built into the drum heater.

If the temperature of the drum drops below a specific level, the output from the comparator circuit goes '1', turning ON the trigger circuit. This condition in turn turns ON the triac and activates the drum heater.

If the surface temperature of the drum is higher than a specific value, the output from the comparator circuit goes '0' and, as a result, the drum heater turns OFF.

Drum surface temperature control value:	40°C
Thermal fuse rated temperature:	76°C

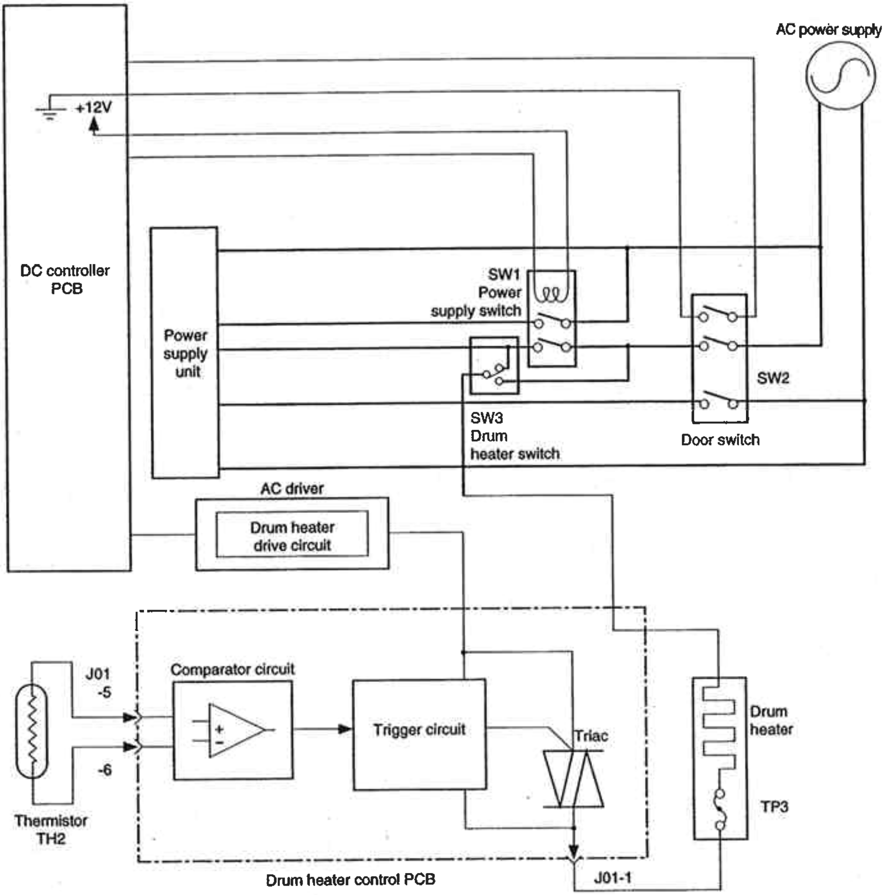

AC power supply
+12V
DC controller PCB
SW1 Power supply switch
Power supply unit
SW3 Drum heater switch
SW2
Door switch
AC driver
Drum heater drive circuit
J01
-5
-6
Comparator circuit
Trigger circuit
Triac
Drum heater
TP3
Thermistor TH2
Drum heater control PCB
J01-1

Figure 3-332

2. Idle Rotation of the Photosensitive Drum and the Developing Cylinder

If the drum heater is not powered at night in a high-humidity environment, the photosensitive drum and the developing cylinder could absorb moisture, possibly lowering the density of copies made in the morning while at times distorting images.

To prevent such a problem, the photosensitive drum and the developing cylinder are caused to make an idle rotation during the wait-up period in the morning if the drum heater switch (SW3) is OFF and the surface temperature of the upper fixing roller is 75°C or less.

The control period of idle rotation may be any of three types, selected in relation to the vapor ratio measured by the environment sensor as shown in Table 3-309.

Reference:

The term *vapor ratio* refers to the amount of moisture (g) in 1 kg of air.

Reference:

In the 100V model, the NP6050 is equipped with a drum heater switch (SW3), i.e., idle rotation mode ON.

The controls shown in Table 3-309 may be varied in service mode.

Vapor ratio	Idle rotation period	dle rotation time
7g/kg or less	No idle rotation	None
from 7 to 2 g/kg	From when the fixing roller reaches 100°C until fixing warm-up	2 to 2.5 min
12 g/kg or more	From power-on until fixing warm-up	Up to 5 min

Table 3-309

H. Cleaning the Primary Charging Wire

1. Outline

The NP6050 is equipped with an automatic cleaning mechanism for cleaning the charging wire of the primary charging assembly, and cleaning is executed when the following conditions are met:

- The temperature of the fixing roller is 100°C or less at power-on.
- Charging wire cleaning is executed in user mode. (p. 1-23)
- Last rotation (LSTR) has ended after making about 2000 copies.

If cleaning has been executed under the above two conditions, cleaning is executed after making 2000 copies thereafter.

2. Operation of the Primary Charging Wire Cleaning Wire

When the power switch is ON and the surface temperature of the fixing roller is 100°C or less, the primary charging wire cleaning motor (M12) rotates clockwise to move the cleaner forward. About 20 sec later, the drive motor rotates in reverse to move the cleaner in reverse.

Then, the drive motor stops when the cleaner home position detection switch (MSW1) installed to the front of the drum guide turns ON. (The NP6050 is not equipped with a cleaner rear detection mechanism.)

If an error is found for some reason, subsequent cleaning will be prohibited. (This may be overridden by executing cleaning in user mode.)

The RAM On the DC controller PCB keeps count of how many times the charging wire has been cleaned. Cleaning is executed each time 2000 copies have been made; in the case of continuous copying, cleaning is executed when as many copies as specified have been made.

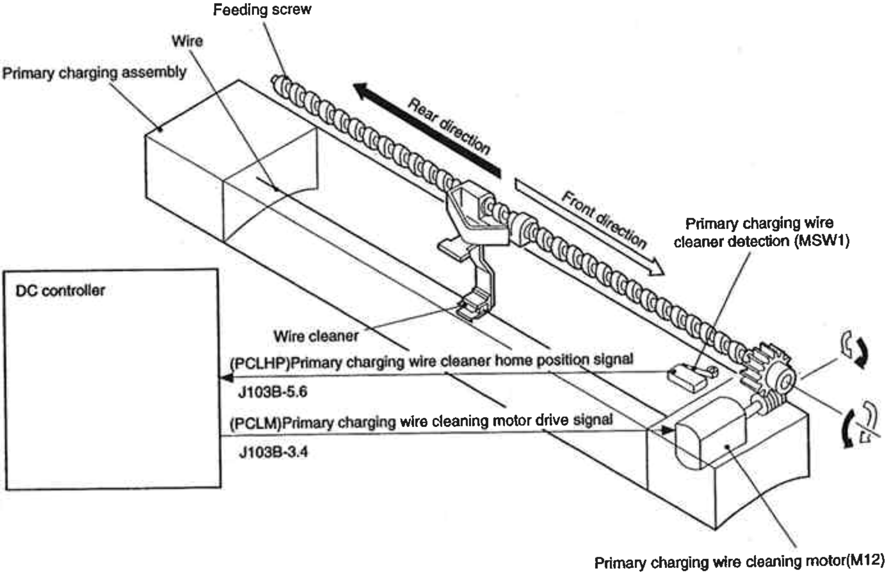

Feeding screw
Wire
Primary charging assembly
Rear direction
Front direction
Primary charging wire cleaner detection (MSW1)
DC controller
Wire cleaner
(PCLHP)Primary charging wire cleaner home position signal
J103B-5.6
(PCLM)Primary charging wire cleaning motor drive signal
J103B-3.4
Primary charging wire cleaning motor(M12)

Figure 3-333

I. Cleaning the Pre-Transfer, Transfer, and Separation Charging Wires Automatically

The NP6050 is equipped with an automatic cleaning mechanism for the charging wires used for the pre-transfer, transfer, and separation charging assemblies.

As in the case of the primary charging wire automatic cleaning mechanism, a cleaner drive motor and a cleaner home position detection circuit are used to operate the cleaning mechanism.

The mechanism operates under the same conditions and for the same length of time as the cleaning mechanism used for the primary charging wire.

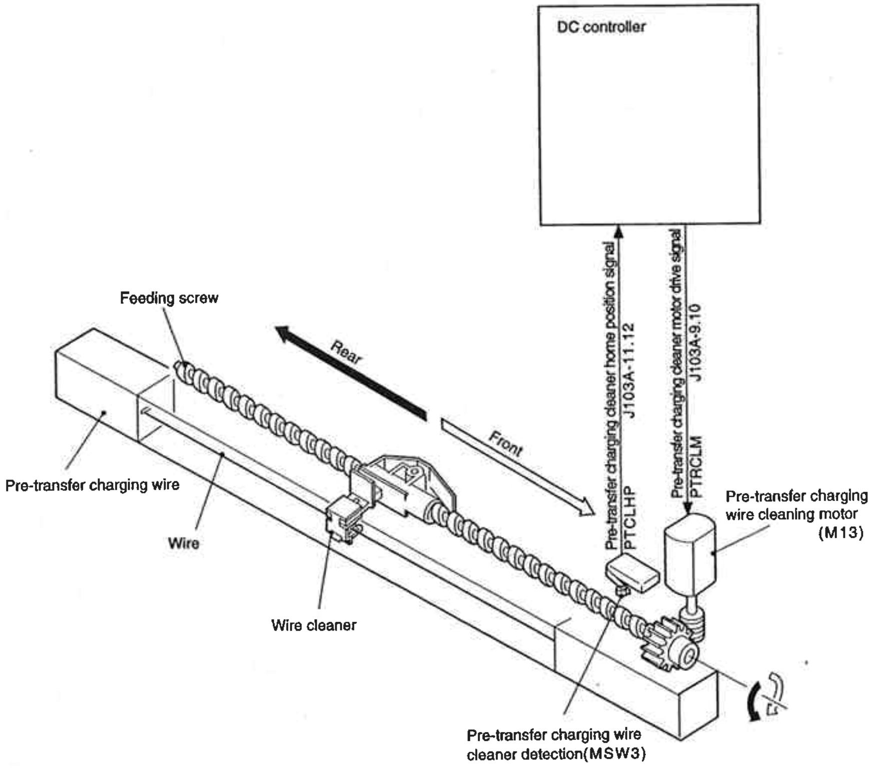

DC controller
Pre-transfer charging cleaner home position signal
PTCLHP J103A-11.12
Pre-transfer charging cleaner motor drive signal
PTRCLM J103A-9.10
Feeding screw
Rear
Front
Pre-transfer charging wire
Wire
Wire cleaner
Pre-transfer charging wire cleaning motor (M13)
Pre-transfer charging wire cleaner detection(MSW3)

Figure 3-334 (pre-transfer charging assembly)

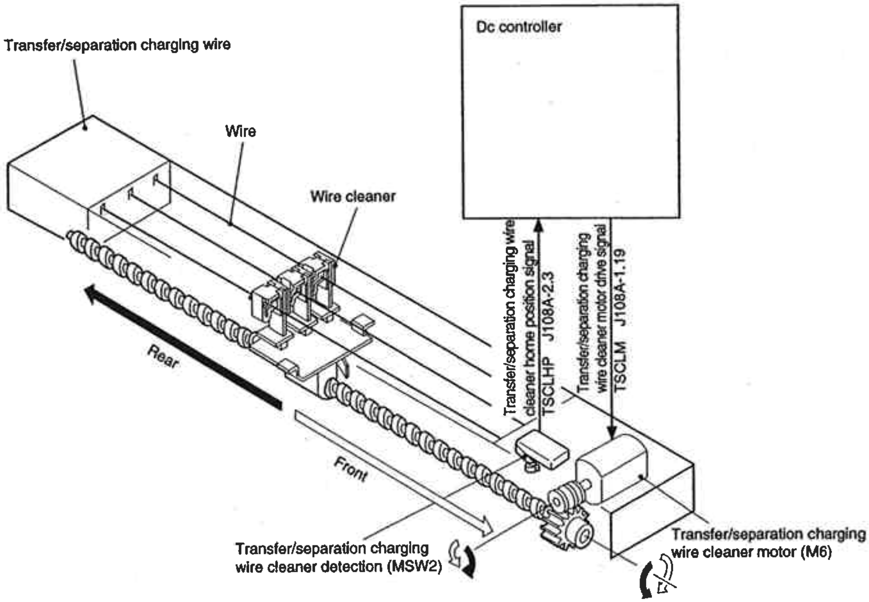

Dc controller
Transfer/separation charging wire
Wire
Wire cleaner
Rear
Front
Transfer/separation charging wire cleaner home position signal
TSCLHP J108A-2.3
Transfer/separation charging wire cleaner motor drive signal
TSCLM J108A-1.19
Transfer/separation charging wire cleaner detection (MSW2)
Transfer/separation charging wire cleaner motor (M6)

Figure 3-335 (transfer/separation charging assembly)

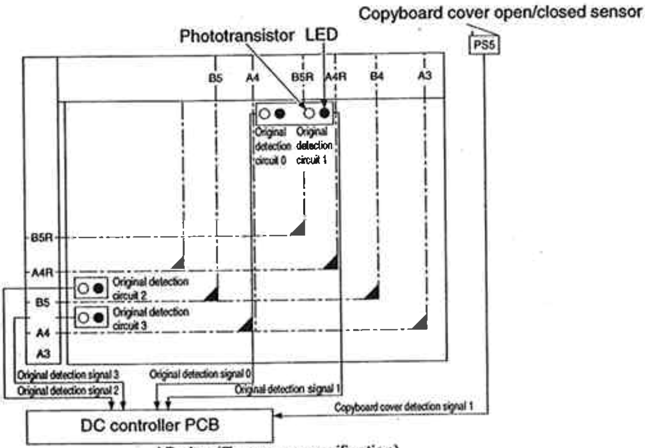
J. Detecting the Size of Originals

1. Outline

The NP6050 is provided with an auto paper selection function and an auto reproduction ratio selection function, which require identification of the size of originals.

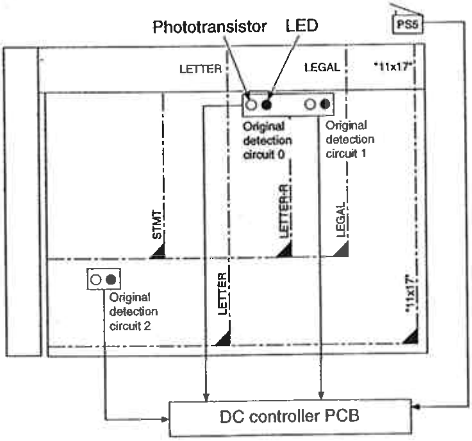
As many as four original detection circuits are located under the copyboard glass (Figure 3-336), and the outputs of these sensors are measured by the DC controller when the copyboard cover is closed, identifying the size of the original on the copyboard as being A3, B4, A4, or B5.

Each of the original detection circuit uses a LED to emit light and a phototransistor to detect the light reflected by the original for output to the DC controller.


Copyboard cover open/closed sensor
PS5
Phototransistor
LED
B5
A4
B5R
A4R
B4
A3
Original detection circuit 0
Original detection circuit 1
B5R
A4R
Original detection circuit 2
B5
Original detection circuit 3
A4
A3
Original detection signal 3
Original detection signal 2
Original detection signal 0
Original detection signal 1
Copyboard cover detection signal 1
DC controller PCB

AB size (European specification)

Figure 3-336a

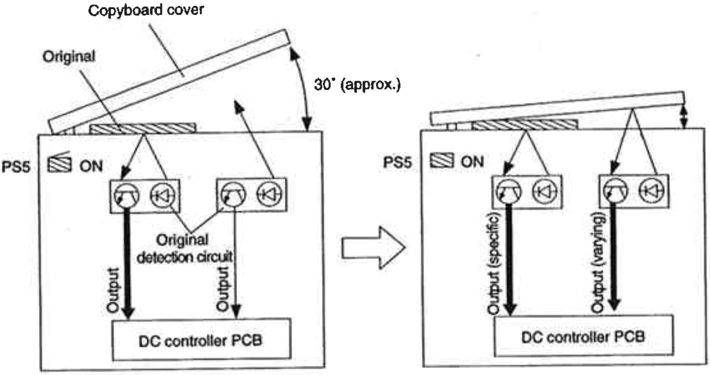

Phototransistor
LED
PS5
LETTER
LEGAL
"11x17"
Original detection circuit 0
Original detection circuit 1
STMT
LETTER-R
LEGAL
LETTER
"11x17"
Original detection circuit 2
DC controller PCB

INCH size (North america specification)

Figure 3-336b

2. Operation

The DC controller measures the outputs of the original detection circuits for 15 sec after the closing copyboard cover turns on the copyboard cover open/closed sensor (PS5) or at intervals of 0.2 sec until the Copy Start key is pressed.



(The thickness of the arrows indicating outputs represents the size of the level.)

Figure 3-337

If an original is over a sensor, the light reflected by the original is received by the original detection circuit so that the output of the detection circuit is specific regardless of the angle of the copyboard cover.

If no original is over the sensor, on the other hand, the output immediately after PS5 turns on is small. The output increases thereafter when the copyboard cover is fully closed, since the detection circuit will receive the light reflected by the copyboard cover sheet.

As such, the DC controller assumes the presence of an original at each point if the output of the detection circuit remains unchanged and assumes the absence of an original in response to a change in the output.

This type of detection enables identification of the size of a black original as well.

Reference:

1. If the original is thick and the copyboard cover cannot be closed fully even after PS5 has turned ON, the output level of the sensor will not change. As such, if no change occurs in the output levels of three sensors, the DC controller will compare the measurements taken as soon as PS5 turns ON against the slice level to identify the size of the original.
2. If the copyboard cover is open, i.e., PS5 is OFF, the cassette containing paper of the largest size will be selected of all the cassettes set in the copier.

3. Sizes of Originals

The DC controller identifies the size of originals based on specific combinations of original detection signals (DSITE0 through 3) as follows:

1 AB Configuration

Original detection signal				Size
DS3	DS2	DS1		
Sensor 3	Sensor 2	Sensor 1	Sensor 0	AB
0	0	0	0	None or A5, A5R
0	0	0	1	B5R
0	1	0	0	B5
1	1	0	0	A4
0	0	1	1	A4R
0	1	1	1	B4
1	1	1	1	A3

Table 3-310

2 Inch Configuration

Original detection signal			Size
DS2	DS1		
Sensor 2	Sensor 1	Sensor 0	Inch
0	0	0	None
0	0	1	LTRR
0	1	1	LGR
1	0	0	LTR
1	1	1	11"X17"

Table 3-311

IV. PICK-UP/FEEDING SYSTEM

A. Outline

The NP6050 uses center reference, in which copy paper is moved along the center of the pick-up/feeding path, thereby ensuring stable pick-up feeding operations.

The pick-up system consists of the paper deck, cassettes, and multifeeder assembly; in addition, the system includes the holding tray assembly and the holding tray feeding assembly for making two-sided/overlay copies.

The feeding system has two feeding paths: for one-sided copies and for two-sided/overlay copies (through the holding tray assembly and the holding tray feeding assembly), and the paths are separated by a delivery paper deflecting plate.

When making a one-sided copy, the copy paper picked up from the cassette, paper deck, or multifeeder is controlled by the registration roller so that its leading edge matches the leading edge of the image on the photosensitive drum; then, the paper is forwarded to the copy tray through the transfer, separation, feeding, fixing, and delivery assembly.

When making two-sided/overlay copies, on the other hand, the paper is stacked on the holding tray after fixing on the first side. Then, it is picked up from the holding tray for copying on the second side; it moves through the holding tray feeding assembly and is sent to the copy tray through the same path as one-sided copies.

As many as 17 sensors are used to monitor the movement of copy paper; see Figure 3-401 for the arrangement of these sensors.

Sensor No.	Name	Sensor No.	Name
PS08	Holding tray feeding assembly 1 paper sensor	PS24	Pick-up vertical path 0 paper sensor
PS09	Holding tray feeding assembly 2 paper sensor	PS27	Pick-up vertical path 3 paper sensor
PS10	External delivery sensor	PS30	Pick-up vertical path 4 paper sensor
PS12	Internal delivery sensor (reversing assembly)	PS33	Pick-up vertical path 1 paper sensor
PS14	Holding tray registration paper sensor	PS36	Pick-up vertical path 2 paper sensor
PS15	Holding tray inlet paper sensor	PS47	Fixing assembly outlet paper sensor
PS17	Holding tray pick-up sensor	PS49	Left deck outlet paper sensor
PS22	Multifeeder pick-up sensor	PS52	Claw jam sensor
PS23	Registration paper sensor		

Table 3-401

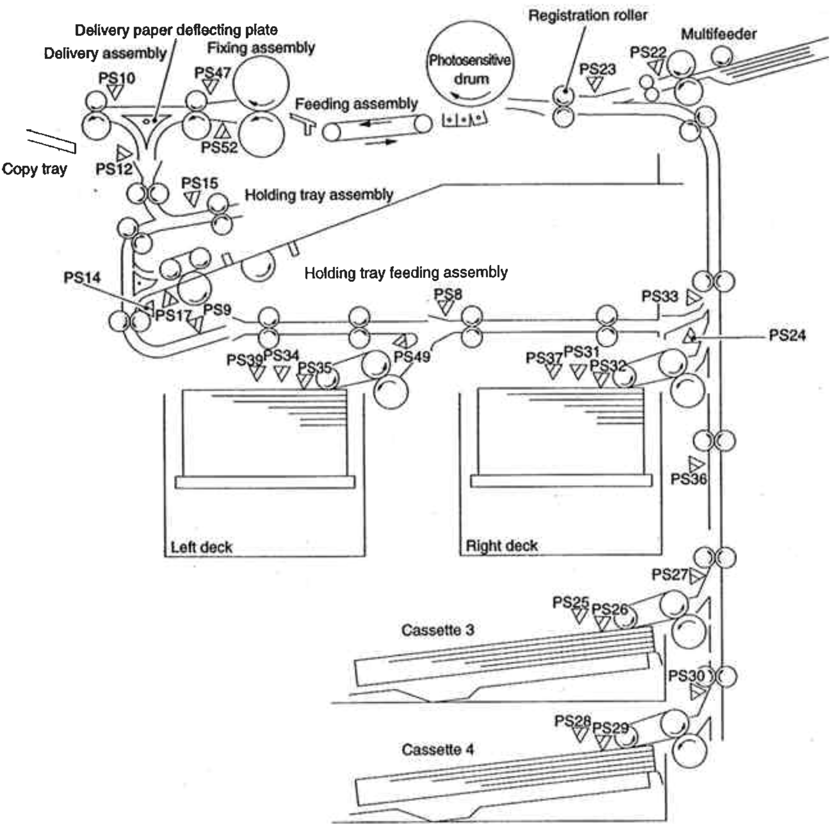

Delivery paper deflecting plate
Delivery assembly
Fixing assembly
Registration roller
Multifeeder
Photosensitive drum
PS10
PS47
PS22
PS23
Feeding assembly
PS52
Copy tray
PS12
PS15
Holding tray assembly
Holding tray feeding assembly
PS14
PS8
PS33
PS17
PS9
PS24
PS39
PS34
PS35
PS49
PS37
PS31
PS32
PS36
Left deck
Right deck
PS27
PS25
PS26
Cassette 3
PS30
PS28
PS29
Cassette 4

Figure 3-401 (2-cassette type + paper deck)

B. Pick-Up from the Cassette

1. Pick-Up Operation

See Figure 3-403 for an idea of how cassette pick-up operations are controlled.

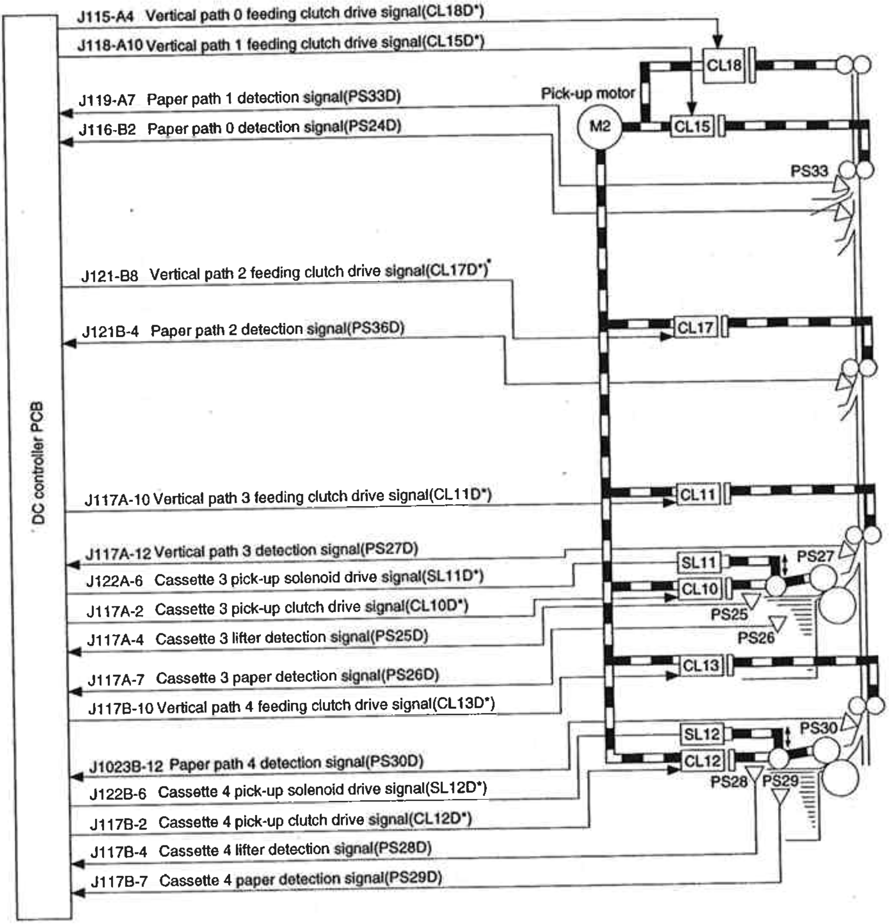

DC controller PCB
J115-A4 Vertical path 0 feeding clutch drive signal(CL18D*)
J118-A10 Vertical path 1 feeding clutch drive signal(CL15D*)
J119-A7 Paper path 1 detection signal(PS33D)
J116-B2 Paper path 0 detection signal(PS24D)
J121-B8 Vertical path 2 feeding clutch drive signal(CL17D*)
J121B-4 Paper path 2 detection signal(PS36D)
J117A-10 Vertical path 3 feeding clutch drive signal(CL11D*)
J117A-12 Vertical path 3 detection signal(PS27D)
J122A-6 Cassette 3 pick-up solenoid drive signal(SL11D*)
J117A-2 Cassette 3 pick-up clutch drive signal(CL10D*)
J117A-4 Cassette 3 lifter detection signal(PS25D)
J117A-7 Cassette 3 paper detection signal(PS26D)
J117B-10 Vertical path 4 feeding clutch drive signal(CL13D*)
J1023B-12 Paper path 4 detection signal(PS30D)
J122B-6 Cassette 4 pick-up solenoid drive signal(SL12D*)
J117B-2 Cassette 4 pick-up clutch drive signal(CL12D*)
J117B-4 Cassette 4 lifter detection signal(PS28D)
J117B-7 Cassette 4 paper detection signal(PS29D)
Pick-up motor
M2
CL18
CL15
PS33
CL17
CL11
SL11
PS27
CL10
PS25
PS26
CL13
SL12
PS30
CL12
PS28
PS29

Figure 3-402

The copy paper inside the cassette is lifted by the lifter so that it remains in contact with the pick-up roller.

When the pick-up clutch (CL14, CL16, CL10, CL12) turns ON, the pick-up roller rotates to pick-up copy paper. Then, the pick-up roller releasing solenoid (SL4, SL5, SL11, SL12) turns ON so that the pick-up roller leaves the paper.

The copy paper then reaches the feeding roller and the separation roller, which serves to make sure that only one sheet of copy paper is fed forward; then, the vertical path roller operates to send the copy paper to the registration roller.

The registration roller serves to control the copy paper so that its leading edge and the leading edge of the image on the photosensitive drum match.

2. Sequence of Pick-Up Operations

- Cassette 3, A4, 2 Copies, Continuous

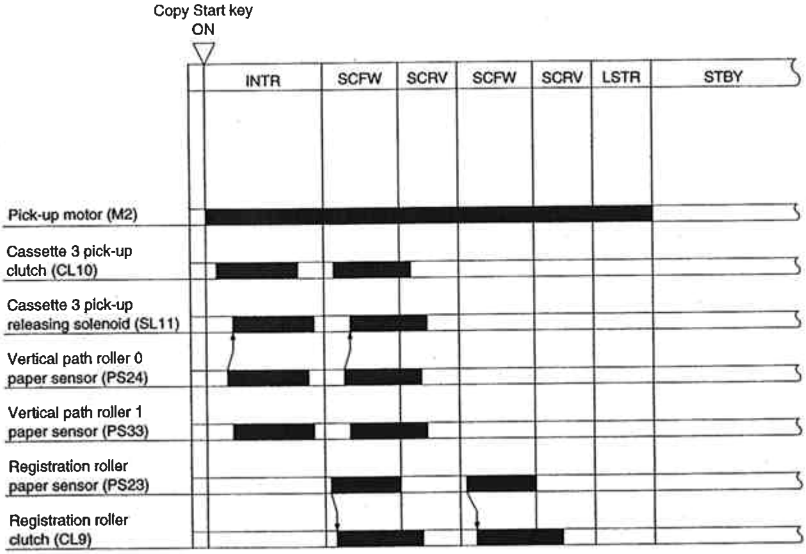


Figure 3-403

C. Cassette Lifter Operations

The lifter inside the cassette is designed so that the pick-up roller lowers when the cassette is pushed inside the copier, causing the lifter position sensor (PS31, PS34, P25, PS28) to leave the light-blocking plate. This condition turns ON the lifter motor (M16, M17, M14, M15) to move up the lifter. The lifter motor stops where the lifter position sensor (PS25, PS28) can detect the top surface of the stack of copy paper on the lifter.

When copy paper runs out and the paper detecting lever leaves the paper sensor (PS26, PS29), the message Add Paper is indicated on the control panel.

The light-blocking plate leaves the cassette open/closed sensor 3/4 (PS50/51) when the grip of the cassette is held, lowering the lifter.

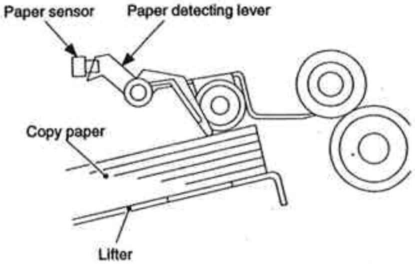


Figure 3-404 (paper present)

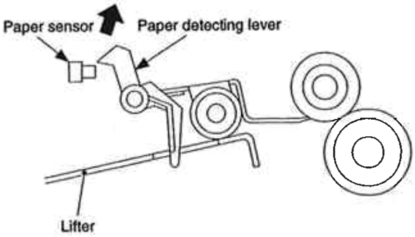


Figure 3-405 (paper absent)

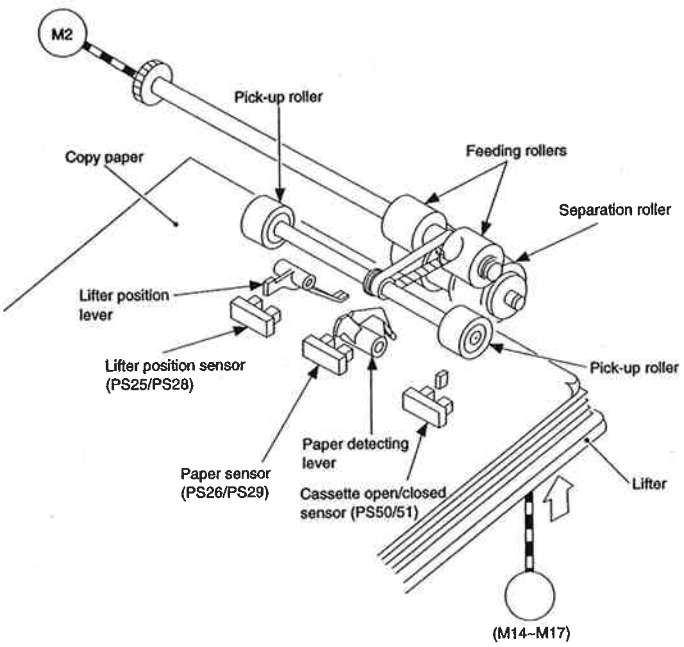

M2
Pick-up roller
Copy paper
Feeding rollers
Separation roller
Lifter position lever
Lifter position sensor (PS25/PS28)
Pick-up roller
Paper detecting lever
Paper sensor (PS26/PS29)
Cassette open/closed sensor (PS50/51)
Lifter
(M14~M17)

Figure3-406

D. Detecting the Size of Copy Paper in the Cassette

1. Outline

The size of the copy paper inside the cassette is detected by the paper size sensor installed to the rear of the cassette holder.

When the cassette is slid into the cassette holder, the paper size sensor is pushed by the boss on the cassette, enabling the identification of the width and the length of the copy paper.

The copier identifies the paper size in relation to the combination of paper width and length and, at the same time, determines the point at which the scanner is reversed and how to control blank exposure.

The boss on the cassette used to press the paper size sensor operates in conjunction with the guide plate inside the cassette, and its position is determined when the guide plate is adjusted to the paper size.

2. Detecting the Size of Paper

The copy paper length sensor consists of two photointerrupters, and the outputs of these two photointerrupters are used to identify the length of paper.

The copy paper width sensor, on the other hand, is a variable resistor, and its output (resistance) is used to determine the width of paper.

Figure 3-408 shows the relationship between paper widths and outputs of the variable resistors. To ensure that the relationship is maintained, it is important that you register the basic settings whenever you have replaced the DC controller PCB. (See "Registering Basic Settings" in the Service handbook.)

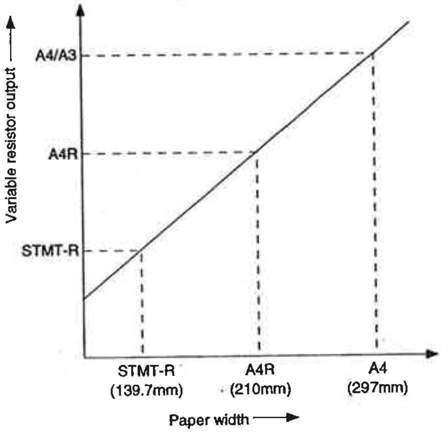


Figure 3-407

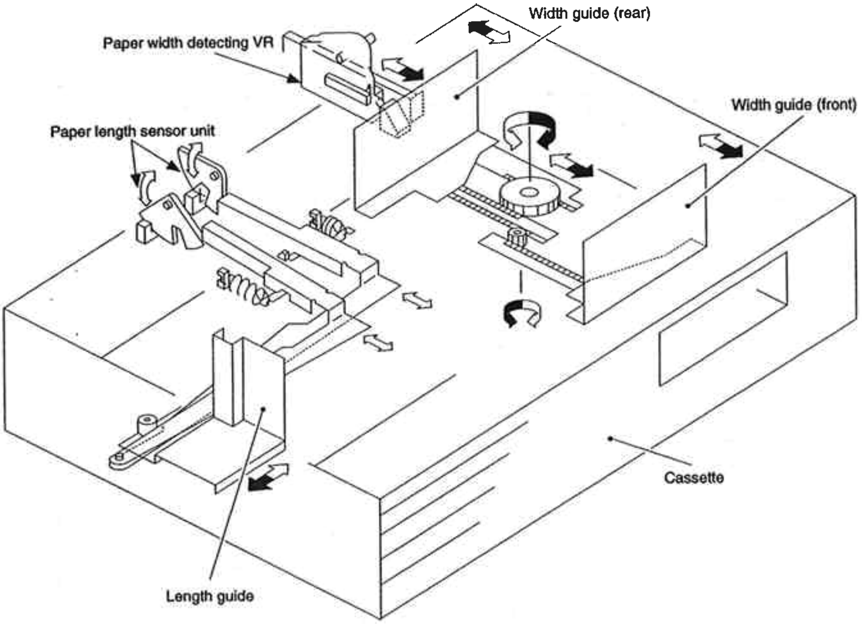

Width guide (rear)
Paper width detecting VR
Width guide (front)
Paper length sensor unit
Cassette
Length guide

Figure 3-408

3. Markings on the Width Guide Rail

The width guide rail inside the cassette has paper size positioning holes marked A through M as shown in Table 3-402.

Make use of these holes if the user reports such problems as skew pick-up to make sure if the specified width is the actual width of the copy paper being used. (This information is not disclosed to the user.)

Marking	Paper name	Remarks
A	STMT-R	
B	A5-R	
C	B5-R	
D	KLGL-R	
E	GLTR-R	
F	G-LGL	G3
G	A4-R	
H	LGL/LTR-R	
I	FLSC	G2
J	B4/B5	
K	G-LTR	G1
L	11"×17"/LTR	G5
M	A3/A4	

Table 3-402

4. Paper Sizes

The microprocessor on the DC controller PCB identifies the size of paper according to the following table.

The paper sizes in Table 3-404 are specified in service mode selected in relation to each group.

(The asterisk indicates the paper size specified at time of shipment.)

Paper length sensor	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103
Paper width sensor (slice level) unit: mm \ Signal name	SZ 2	SZ 1	SZ 2	SZ 1	SZ 2	SZ 1	SZ 2	SZ 1
ON/OFF	0	0	0	1	1	0	1	1
	A4		—		A3		—	
288.5	(G4)		—		11"X17"		—	
273.7	(G1)		—		—		—	
261.8	B5		—		B4		—	
238.0	STMT		LTRR		LGL		(G2)	
212.9	A5		A4R		—		(G3)	
206.6	G-LTRR		—		—			
196.6	K-LGLR		—		—		—	
186.0	B5R		—		—		—	
165.2	A5R		—		—		—	
144.1	STMTR		—		—		—	

Table 3-403

Group		Size
G1	*	G-LTR K-LGL
G2	*	FOOLSCAP OFFICIO E-OFFI A-LGL A-OFFI
G3	*	G-LGL FOLIO AUS-FLS
G5	*	LTR A-LTR

Table 3-404

- Paper Types for the NP6050

Description	Summary	Size (length X width mm)
A3	A3	(297±1) X (420±1)
A4R	A4R	(210±1) X (297±1)
A4	A4	(297±1) X (210±1)
A5	A5	(210±1) X (148.5±1)
A5R	A5R	(148.5±1) X (210±1)
B4	B4	(257±1) X (364±1)
B5R	B5R	(182±1) X (257±1)
B5	B5	(257±1) X (182±1)
11" X 17"	11 X 17	(279±1) X (432±1)
LETTER-R	LTRR	(216±1) X (297±1)
LETTER	LTR	(297±1) X (216±1)
STATEMENT	STMT	(216±1) X (139.5±1)
STATEMENT R	STMTR	(139.5±1) X (216±1)
LEGAL	LGL	(216±1) X (356±1)
KOREAN LEGAL	K-LGL	(265±1) X (190±1)
KOREAN LEGAL R	K-LGLR	(190±1) X (265±1)
FOOLSCAP	FLSC	(216±1) X (330±1)
AUSTRALIAN FOOLSCAP	A-FLS	(206±1) X (337±1)
OFICIO	OFI	(216±1) X (317±1)
ECUADOR OFICIO	E-OFI	(220±1) X (320±1)
BOLIVIA OFICIO	B-OFI	(216±1) X (355±1)
ARGENTINE LETTER	A-LTR	(280±1) X (220±1)
ARGENTINE LETTER-R	A-LTRR	(220±1) X (280±1)
GOVERNMENT LETTER	G-LTR	(267±1) X (203±1)
GOVERNMENT LETTER-R	G-LTRR	(203±1) X (267±1)
ARGENTINE LEGAL	A-LGL	(220±1) X (340±1)
GOVERNMENT LEGAL	G-LGL	(203±1) X (330±1)
FOLIO	FOLI	(216±1) X (317±1)
ARGENTINE OFFICIO	A-OFI	(220±1) X (340±1)

Tabl3 3-405

5. Registering Paper Width Basic Settings

See the Service Handbook.

E. Paper Deck

The paper deck picks up and feeds paper by operating various loads in response to the instructions from the DC controller PCB.

The loads used to pick up and feed paper and move up the lifter are driven by the pick-up motor.

The service person is expected to register the new size in service mode whenever the deck size has been changed.

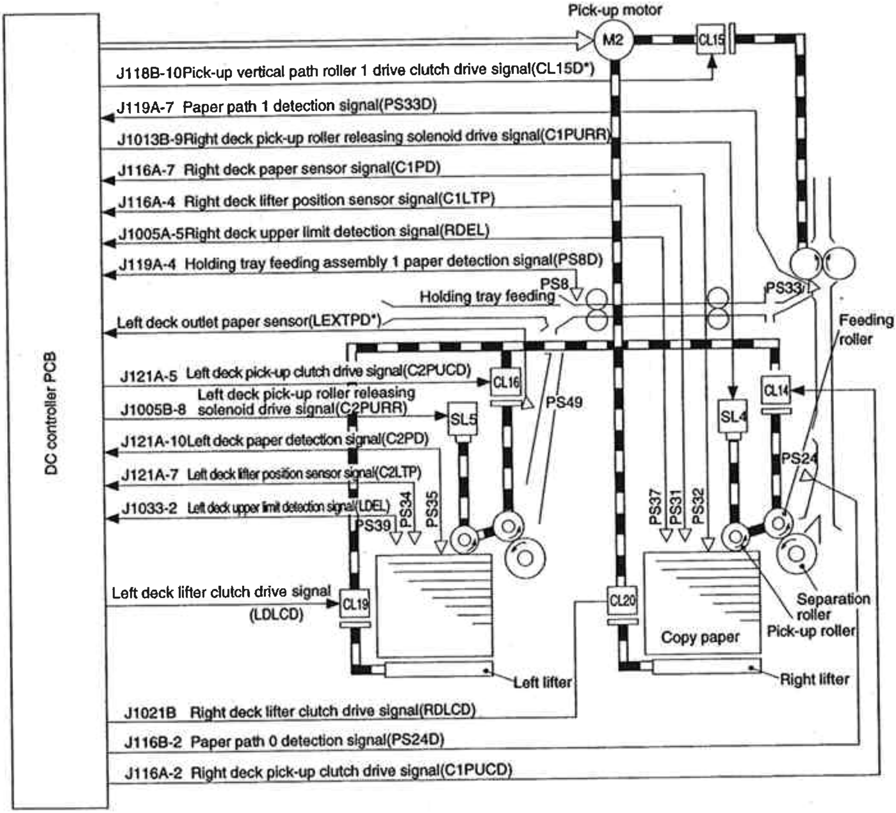

DC controller PCB
Pick-up motor
M2
CL15
J118B-10Pick-up vertical path roller 1 drive clutch drive signal(CL15D*)
J119A-7 Paper path 1 detection signal(PS33D)
J1013B-9Right deck pick-up roller releasing solenoid drive signal(C1PURR)
J116A-7 Right deck paper sensor signal(C1PD)
J116A-4 Right deck lifter position sensor signal(C1LTP)
J1005A-5Right deck upper limit detection signal(RDEL)
J119A-4 Holding tray feeding assembly 1 paper detection signal(PS8D)
PS8
Holding tray feeding
PS33
Feeding roller
Left deck outlet paper sensor(LEXTPD*)
J121A-5 Left deck pick-up clutch drive signal(C2PUCD)
CL16
J1005B-8 Left deck pick-up roller releasing solenoid drive signal(C2PURR)
SL5
PS49
SL4
CL14
J121A-10Left deck paper detection signal(C2PD)
J121A-7 Left deck lifter position sensor signal(C2LTP)
J1033-2 Left deck upper limit detection signal(LDEL)
PS39
PS34
PS35
PS37
PS31
PS32
PS24
Left deck lifter clutch drive signal (LDLCD)
CL19
CL20
Copy paper
Separation roller
Pick-up roller
Left lifter
Right lifter
J1021B Right deck lifter clutch drive signal(RDLCD)
J116B-2 Paper path 0 detection signal(PS24D)
J116A-2 Right deck pick-up clutch drive signal(C1PUCD)

Figure 3-409

1. Pick-Up Operations

The copy paper inside the deck is lifted by the lifter so that the copy paper remains in contact with the pick-up roller.

When the deck pick-up clutch (CL14/CL16) turns ON, the pick-up roller rotates to pick up copy paper. Then, the deck pick-up roller releasing solenoid (SL4/SL5) turns ON so that the pick-up roller leaves the surface of the paper.

Thereafter, copy paper reaches the feeding roller and the separation roller, which make sure that only one sheet is forwarded to the feeding path. Then, the vertical path roller operates to feed the copy paper as far as the registration roller.

The registration roller serves to make sure that the leading edge of the copy paper matches the leading edge of the image on the photosensitive drum.

2. Sequence of Pick-Up Operations

a. Right Deck, A4, 2 Copies

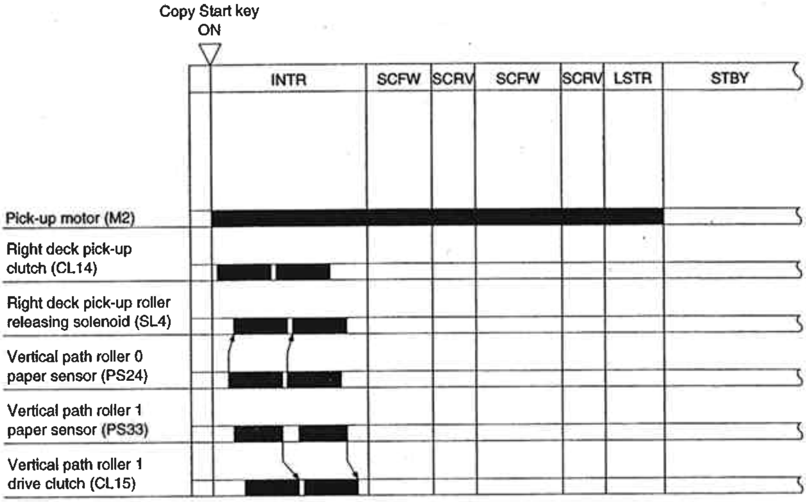

Copy Start key
ON
INTR
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
Pick-up motor (M2)
Right deck pick-up clutch (CL14)
Right deck pick-up roller releasing solenoid (SL4)
Vertical path roller 0 paper sensor (PS24)
Vertical path roller 1 paper sensor (PS33)
Vertical path roller 1 drive clutch (CL15)

Figure 3-410

b. Left Deck, A4, 2 Copies

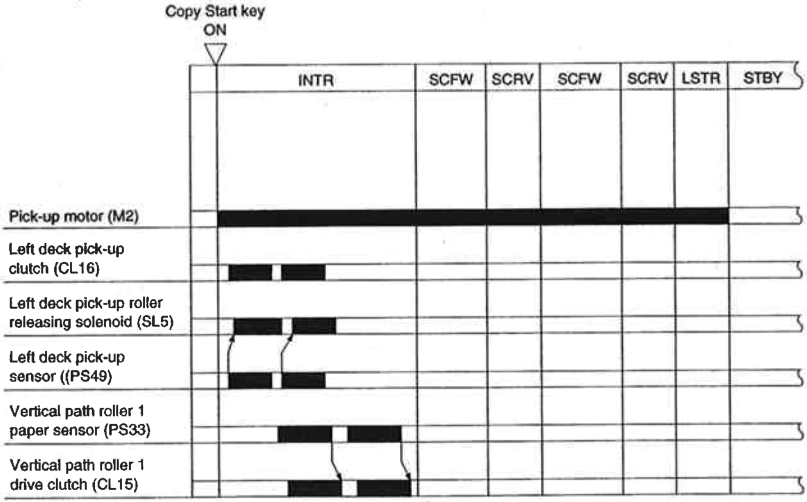

Copy Start key
ON
INTR
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
Pick-up motor (M2)
Left deck pick-up clutch (CL16)
Left deck pick-up roller releasing solenoid (SL5)
Left deck pick-up sensor ((PS49)
Vertical path roller 1 paper sensor (PS33)
Vertical path roller 1 drive clutch (CL15)

Figure 3-411

F. Lifter Operations

1. Operations

When the deck is pushed inside the pedestal, the deck open/closed sensor (PS38/PS40) turns ON and, at the same time, the pick-up roller lowers, causing the deck lifter position sensor (PS31/PS34) to leave the light-blocking plate.

This condition turns ON the lifter drive clutch (CL20/CL19), and the drive of the pick-up motor (M2) is transmitted to the cable take-up shaft to move up the lifter.

The lifter stops where the deck lifter position sensor (PS31/PS34) can detect the top surface of the copy paper on the lifter.

A deck lifter limit sensor (PS37/PS39) is located in consideration of such cases in which the ascent fails to stop even after the sensor arm has blocked the deck lifter position sensor (PS31/PS34).

After it has moved up, the lifter is held in place by the work of gears.

When the deck is slid out from the copier, the cable take-up gear disengages itself, allowing the lifter to move down on its own weight.

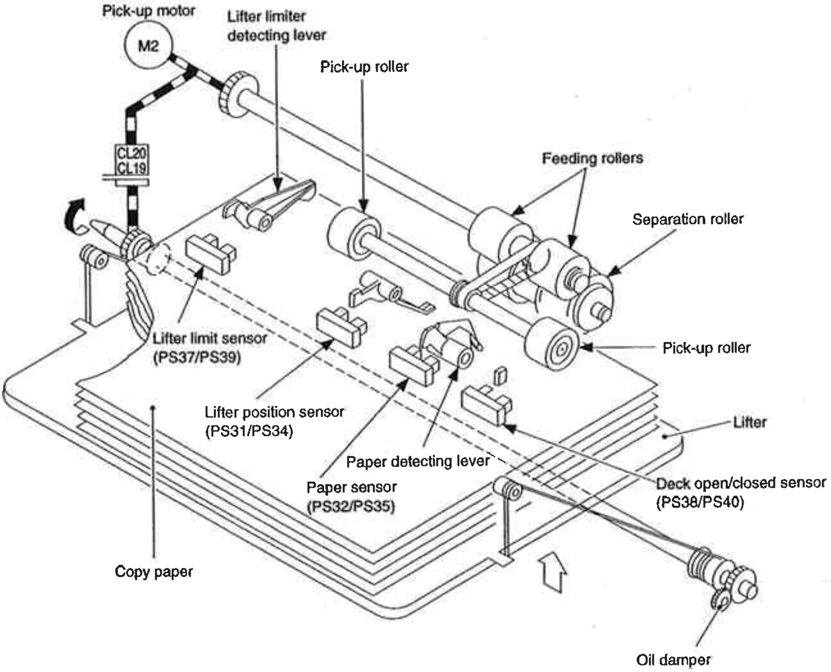
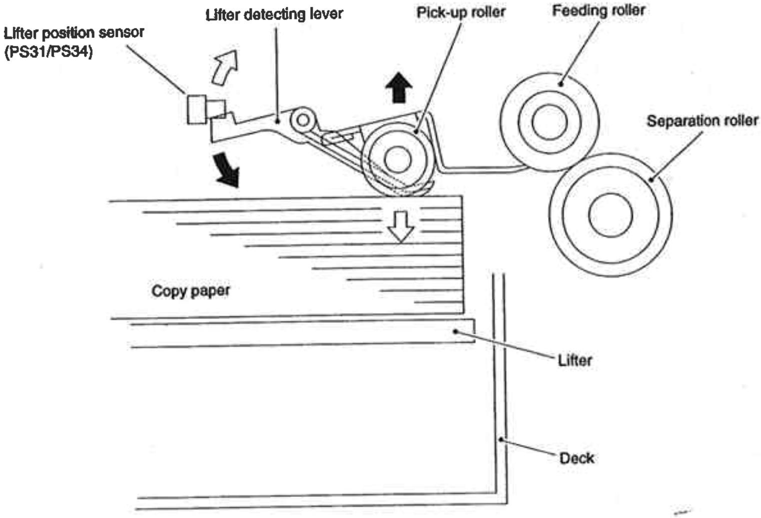

Pick-up motor
M2
Lifter limiter detecting lever
Pick-up roller
CL20
CL19
Feeding rollers
Separation roller
Pick-up roller
Lifter limit sensor (PS37/PS39)
Lifter position sensor (PS31/PS34)
Lifter
Paper detecting lever
Paper sensor (PS32/PS35)
Deck open/closed sensor (PS38/PS40)
Copy paper
Oil damper

Figure 3-412


Lifter position sensor (PS31/PS34)
Lifter detecting lever
Pick-up roller
Feeding roller
Separation roller
Copy paper
Lifter
Deck

⬅: Pick-up roller up; i.e., the light-blocking plate of the lifter detecting lever lowers, blocking the lifter position sensor (PS31/PS34).

⇦: Pick-up roller down; i.e., the light-blocking plate of the lifter detecting lever moves up, leaving the lifter position sensor (PS31/PS34).

Figure 3-413

2. Deck Limit Detection

When the deck reaches the lifter position sensor (PS31/PS34), the deck lifter position detection signal is sent to the DC microprocessor of the DC controller PCB, which in response will stop the deck lifter drive clutch (CL19/CL20). The deck limit sensor (PS37/PS39) is used in consideration of such faults as in which the clutch fails to stop.

When the deck limit sensor (PS37/PS39) detects the deck, the deck limit signal is sent to the limit detection circuit of the DC controller PCB, causing the deck drive signal from the microprocessor to be cut off. (Figure 3-415a)

The 4-cassette type is not equipped with a limit sensor. The limit detection circuit is grounded by a jumper wire. (Figure 3-415b)

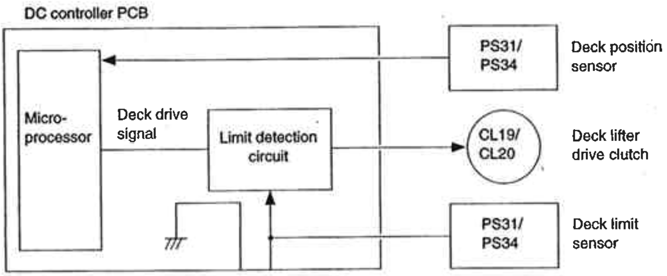

DC controller PCB
Micro-processor
Deck drive signal
Limit detection circuit
PS31/ PS34
Deck position sensor
CL19/ CL20
Deck lifter drive clutch
PS31/ PS34
Deck limit sensor

Figure 3-414a Deck Limit Detection (2-cassette type + left/right deck)

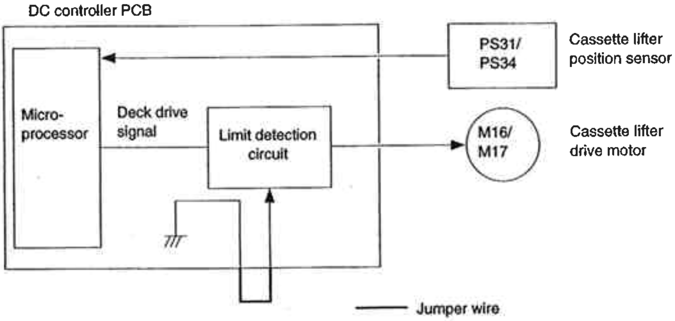

DC controller PCB
Micro-processor
Deck drive signal
Limit detection circuit
PS31/ PS34
Cassette lifter position sensor
M16/ M17
Cassette lifter drive motor
Jumper wire

Figure 3-414b 4-Cassette Type

G. Detecting Paper for the Deck

1. Detecting the Presence/Absence of Paper

The presence/absence of paper inside the deck is detected by the deck paper sensor (PS32/PS35).

When the deck runs out of copy paper, the paper detecting lever leaves the deck paper sensor (PS32/PS35), indicating the absence of paper.

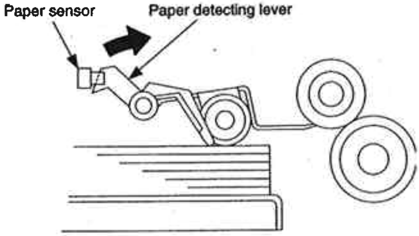


Figure 3-415 (paper present)

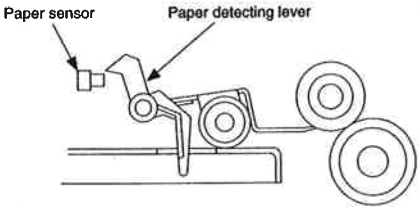


Figure 3-416 (paper absent)

2. Detecting the Deck Size

The service person is expected to register the deck size in service mode.

H. High-Speed Pick-Up

When paper is picked up from the right deck/cassette 1, the pick-up motor (M2) rotates at a high speed to speed up first copy time, and such rotation applies to the following:

- From when the first sheet has reached the path sensor (PS24) until it reaches the registration roller to form an arch.
  The high-speed rotation refers to a rotation made about twice the speed of normal rotation.

I. Multifeeder

1. Pick-Up Operation

The presence of paper in the multifeeder is checked by the multifeeder paper sensor (PS22). When the multifeeder is selected as the source of paper and, in addition, paper is present in the multifeeder, the multifeeder pick-up clutch (CL7) and the multifeeder pick-up relay solenoid (SL15) turn ON in response to a press on the Copy Start key, causing the pick-up roller, feeding roller, separation roller, and holding roller to rotate.

The multifeeder pick-up solenoid (SL1) turns ON in the direction of pick-up, lowering the rotating pick-up roller on the copy paper and ultimately feeding the copy paper inside the machine. When the first sheet has been picked up, the pick-up roller pick-up solenoid turns ON in the releasing direction, causing the pick-up roller to leave the copy paper. Thereafter, the multifeeder pick-up solenoid (SL15) turns OFF, and the copy paper is fed by the work of the registration roller and the holding roller.

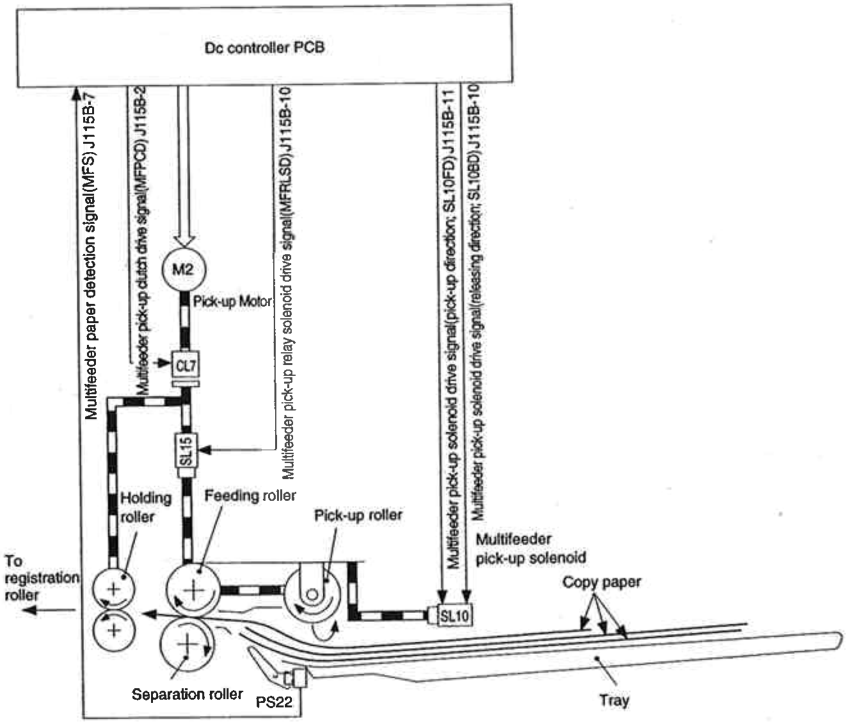

Dc controller PCB
Multifeeder paper detection signal(MFS) J115B-7
Multifeeder pick-up clutch drive signal(MFPCD) J115B-2
Multifeeder pick-up relay solenoid drive signal(MFRLSD) J115B-10
Multifeeder pick-up solenoid drive signal(pick-up direction; SL10FD) J115B-11
Multifeeder pick-up solenoid drive signal(releasing direction; SL10BD) J115B-10
M2
Pick-up Motor
CL7
SL15
Holding roller
Feeding roller
Pick-up roller
Multifeeder pick-up solenoid
Copy paper
To registration roller
SL10
Separation roller
PS22
Tray

Figure 3-417

2. Detecting the Size of Paper in the Multifeeder

When the slide guide of the multifeeder is set to suit the paper width, the variable resistor operating in conjunction with the movement of the slide guide generates a specific output, allowing the DC controller to identify the width of the copy paper.

The width identified this way is used to control the lens and blank exposure. The length of paper when the multifeeder is used is identified in relation to how long the pre-registration paper sensor (PS23) remains ON.

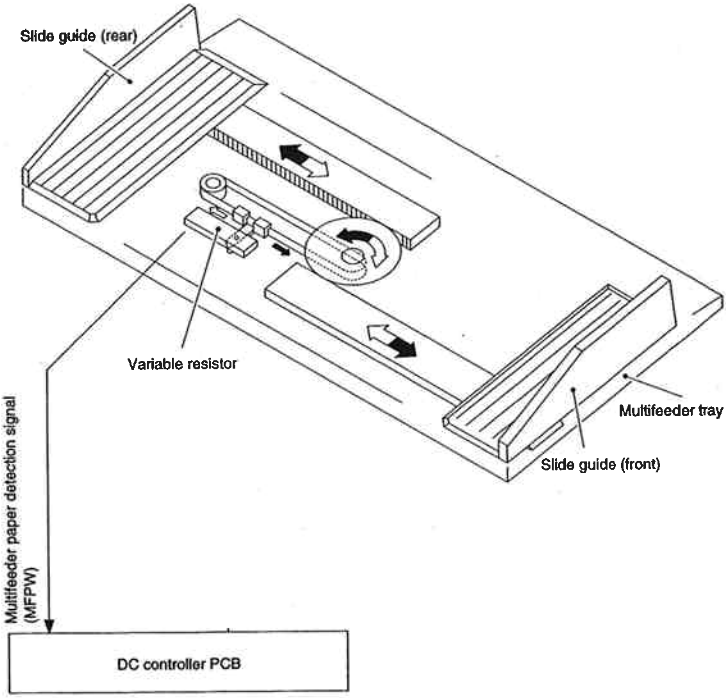

Slide guide (rear)
Variable resistor
Multifeeder tray
Slide guide (front)
Multifeeder paper detection signal (MFPW)
DC controller PCB

Figure 3-418

3. Sequence of Operations (multifeeder)

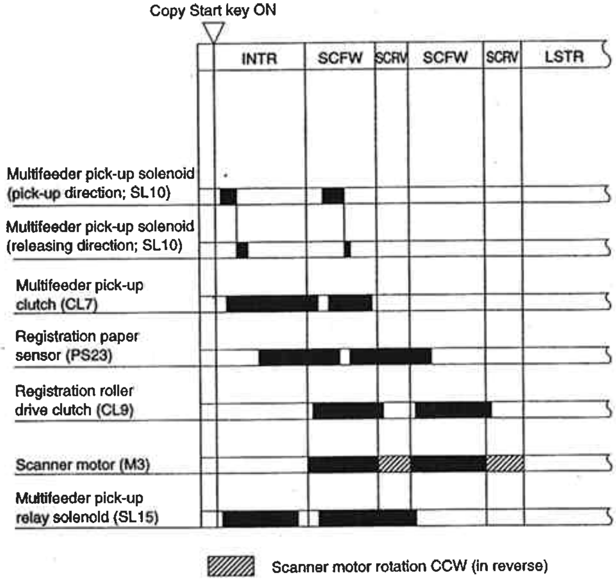


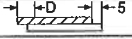
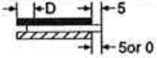
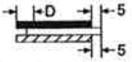
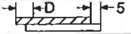
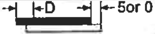
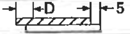
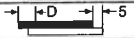
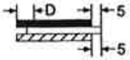
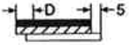
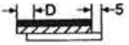
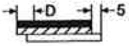
Figure 3-419

J. Controlling the Registration Clutch

The registration clutch serves to make sure that copy paper and the image on the drum match at a specific point.

In modes other than binding mode, the registration clutch exerts control so that the leading edge of copy paper and that of the image on the drum match.

In binding mode, control is as shown in Figure 3-421 so that a binding margin will be creating on the copy.

Selected mode		Copy paper timing	Shift (mm)	Copy paper on copy tray
One-sided original ▶ One-sided copy		B	May be between 0 and 20 mm; illustrations assume a shift of 5 mm.	
One-sided original ↓ Two-sided copy	Copying on 1st side	A		
	Copying on 2nd side	B		
Two-sided original ↓ Two-sided copy	Copying on 1st side	A		
	Copying on 2nd side	B		
Two-sided original ↓ One-sided copy	Copying on 1st side	B		
	Copying on 2nd side	B		
Page separation ↓ (one-sided copy)	Copying on 1st side(left)	B		
	Copying on 2nd side(right)	B		
Page separation ↓ Two-sided copy	Copying on 1st side(left)	A		
	Copying on 2nd side(right)	B		
One-sided original ↓ Overlay copy	Copying on 1st side	B		
	Copying on 2nd side	B		
Two-sided original ↓ Overlay copy	Copying on 1st side	B		
	Copying on 2nd side	B		
Page separation ↓ Overlay copy	Copying on 1st side(left)	B		
	Copying on 2nd side(right)	B		

☐ Copy paper ▨ Image area for copying on 1st side ■ Image area for copying on 2nd side Area D: Erased by blank exposure

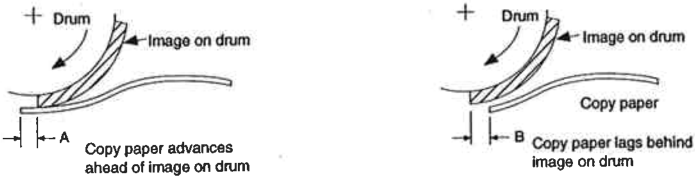

Drum
Image on drum
A
Copy paper advances ahead of image on drum
Drum
Image on drum
Copy paper
B
Copy paper lags behind image on drum

Figure 3-420

K. Making Two-Sided/Overlay Copies (1st side)

The feeding path for copying on the first side of a two-sided/overlay copy is formed when the delivery paper deflecting plate is lifted by the delivery paper deflecting solenoid (SL2).

The paper deflecting plate is lifted as soon as the registration clutch (CL9) turns ON.

When its first side has been copied, the copy paper is fed to the holding tray by the holding tray inlet roller (CW rotation).

The holding tray swinging solenoid (SL9) and the holding tray (X, Y) motor (M8, M9) helps stack copy paper each time a sheet arrives at the holding tray. (See pp. 3-113 and -114.)

When the first sheet is stacked on the holding tray assembly, the holding tray re-pick up roller is rotated to help stacking. The holding tray is capable of up to 50 sheets of copy paper.

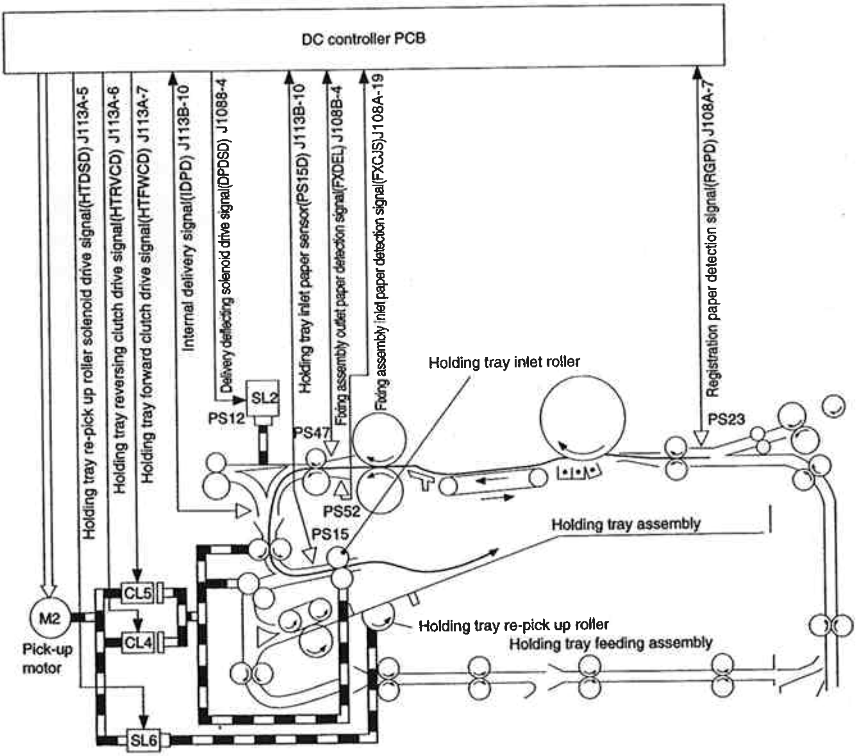
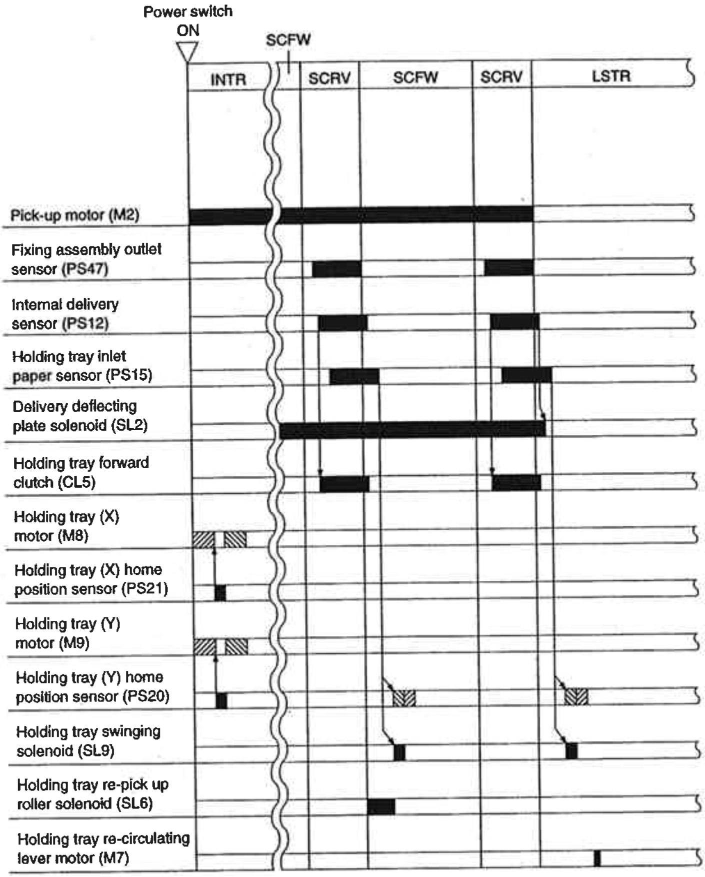

DC controller PCB
Holding tray re-pick up roller solenoid drive signal(HTDSD) J113A-5
Holding tray reversing clutch drive signal(HTRVCD) J113A-6
Holding tray forward clutch drive signal(HTFWCD) J113A-7
Internal delivery signal(IDPD) J113B-10
Delivery deflecting solenoid drive signal(DPDSD) J108B-4
Holding tray inlet paper sensor(PS15D) J113B-10
Fixing assembly outlet paper detection signal(FXDEL) J108B-4
Fixing assembly inlet paper detection signal(FXCJS)J108A-19
Registration paper detection signal(RGPD) J108A-7
Holding tray inlet roller
SL2
PS12
PS47
PS52
PS15
PS23
Holding tray assembly
CL5
CL4
SL6
M2
Pick-up motor
Holding tray re-pick up roller
Holding tray feeding assembly

Figure 3-421

1. Sequence of Operations for Making Two-Sided/Overlay Copies (1st side)


Power switch ON
SCFW
INTR
SCRV
SCFW
SCRV
LSTR
Pick-up motor (M2)
Fixing assembly outlet sensor (PS47)
Internal delivery sensor (PS12)
Holding tray inlet paper sensor (PS15)
Delivery deflecting plate solenoid (SL2)
Holding tray forward clutch (CL5)
Holding tray (X) motor (M8)
Holding tray (X) home position sensor (PS21)
Holding tray (Y) motor (M9)
Holding tray (Y) home position sensor (PS20)
Holding tray swinging solenoid (SL9)
Holding tray re-pick up roller solenoid (SL6)
Holding tray re-circulating lever motor (M7)

▨: Motor CW rotation

▧: Motor CCW rotation

Figure 3-422

L. Making Two-Sided Copies (2nd side)

When copying on the second side of a two-sided copy, the copy paper is picked up from the stack on the holding tray.

When the Copy Start key is pressed, the holding tray separation clutch (CL6) and the holding tray re-pick up roller solenoid (SL6) turn ON to feed one sheet of copy paper to the holding tray registration roller.

The copy paper forms an arch when its leading edge butts against the holding tray registration roller and moves ahead to the holding tray feeding assembly when the holding tray registration clutch (CL3) turns ON.

The copy paper then moves through the holding tray feeding assembly to the registration roller.

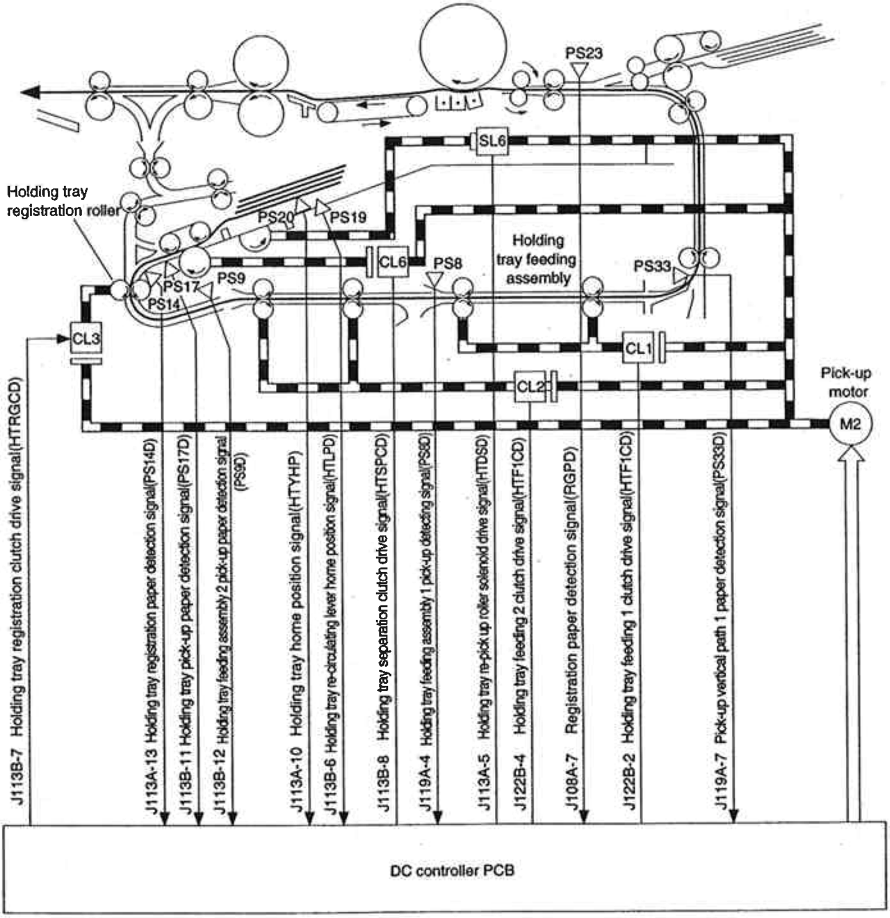

PS23
SL6
Holding tray registration roller
PS20
PS19
CL6
PS8
Holding tray feeding assembly
PS33
PS17
PS9
PS14
CL3
CL1
CL2
Pick-up motor
M2
J113B-7 Holding tray registration clutch drive signal(HTRGCD)
J113A-13 Holding tray registration paper detection signal(PS14D)
J113B-11 Holding tray pick-up paper detection signal(PS17D)
J113B-12 Holding tray feeding assembly 2 pick-up paper detection signal (PS9D)
J113A-10 Holding tray home position signal(HTYHP)
J113B-6 Holding tray re-circulating lever home position signal(HTLPD)
J113B-8 Holding tray separation clutch drive signal(HTSPCD)
J119A-4 Holding tray feeding assembly 1 pick-up detecting signal(PS8D)
J113A-5 Holding tray re-pick up roller solenoid drive signal(HTDSD)
J122B-4 Holding tray feeding 2 clutch drive signal(HTF1CD)
J108A-7 Registration paper detection signal(RGPD)
J122B-2 Holding tray feeding 1 clutch drive signal(HTF1CD)
J119A-7 Pick-up vertical path 1 paper detection signal(PS33D)
DC controller PCB

Figure 3-423

1. Sequence of Operations for Making Two-Sided Copies (2nd side)

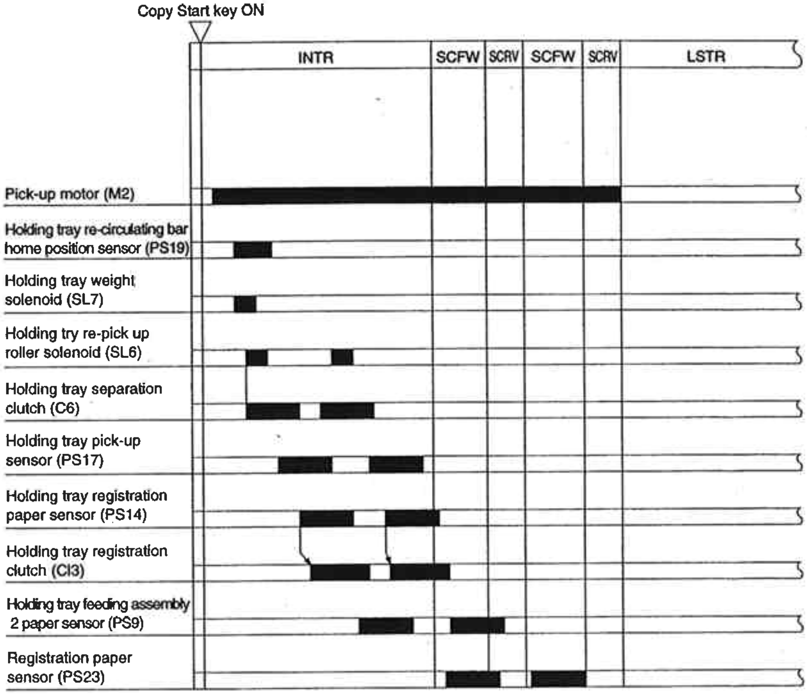

Copy Start key ON
INTR
SCFW
SCRV
SCFW
SCRV
LSTR
Pick-up motor (M2)
Holding tray re-circulating bar home position sensor (PS19)
Holding tray weight solenoid (SL7)
Holding try re-pick up roller solenoid (SL6)
Holding tray separation clutch (C6)
Holding tray pick-up sensor (PS17)
Holding tray registration paper sensor (PS14)
Holding tray registration clutch (Cl3)
Holding tray feeding assembly 2 paper sensor (PS9)
Registration paper sensor (PS23)

Figure 3-424

M. Making Overlay Copies (2nd side)

1. Outline

The feeding path for copying on the second side of an overlay copy is formed when the holding tray paper deflecting plate is lifted by the holding tray paper deflecting solenoid (SL8).

The second side is copied on copy paper picked up from the holding tray. The copy paper is first fed in the direction of the holding tray inlet and then switched back in the direction of the holding tray registration roller.

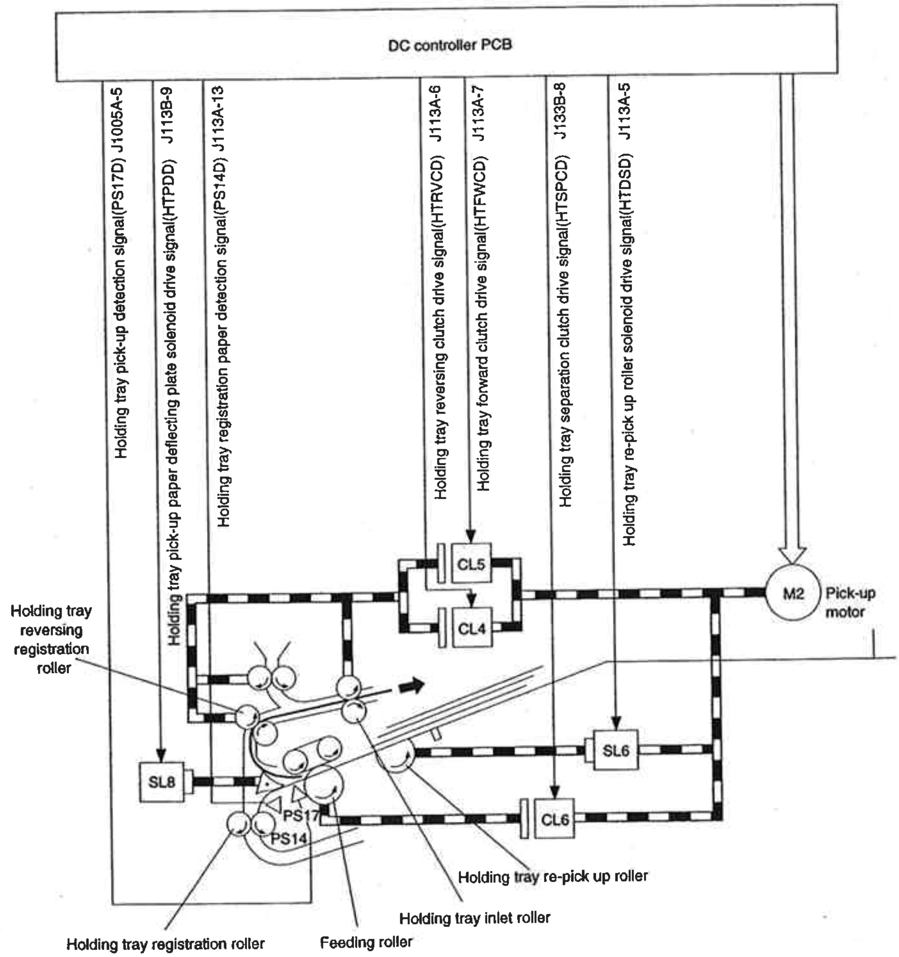

DC controller PCB
Holding tray pick-up detection signal(PS17D) J1005A-5
Holding tray pick-up paper deflecting plate solenoid drive signal(HTPDD) J113B-9
Holding tray registration paper detection signal(PS14D) J113A-13
Holding tray reversing clutch drive signal(HTRVCD) J113A-6
Holding tray forward clutch drive signal(HTFWCD) J113A-7
Holding tray separation clutch drive signal(HTSPCD) J133B-8
Holding tray re-pick up roller solenoid drive signal(HTDSD) J113A-5
CL5
CL4
M2
Pick-up motor
Holding tray reversing registration roller
SL6
SL8
PS17
PS14
CL6
Holding tray re-pick up roller
Holding tray inlet roller
Holding tray registration roller
Feeding roller

Figure 3-425

2. Outline of Operations

① After pick-up, the copy paper is fed upward by the holding tray paper deflecting plate.

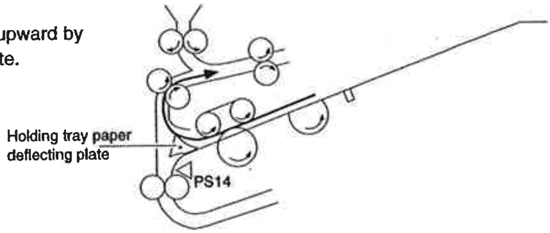

Holding tray paper deflecting plate
PS14

Figure 3-426

② As soon as the trailing edge of the copy paper leaves the holding tray paper deflecting plate, the holding tray forward clutch (CL5) turns OFF, temporarily stopping the copy paper.

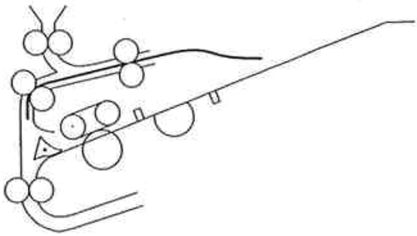


Figure 3-427

③ The holding tray reversing clutch (CL4) turns ON, and the copy paper is reversed in the direction of the holding tray registration roller.

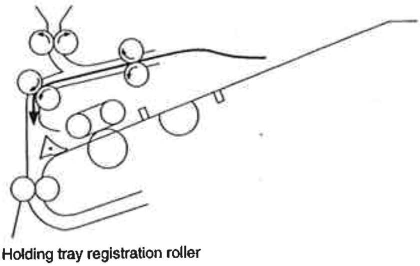

Holding tray registration roller

Figure 3-428

④ The copy paper reaches the holding tray registration roller and moves ahead to the registration roller through the holding tray feeding assembly.

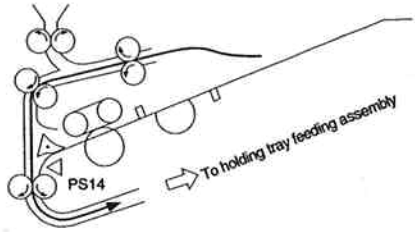

PS14
To holding tray feeding assembly

Figure 3-429

3. Sequence of Operations for Overlay Copies (2ndside)

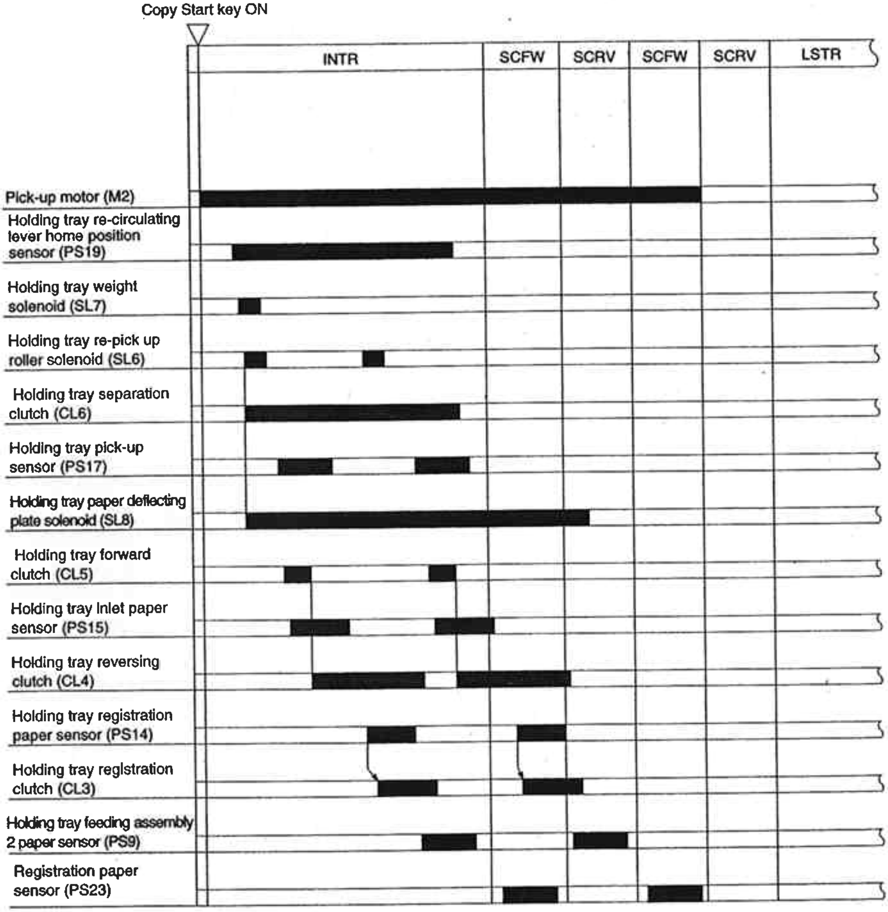

Copy Start key ON
INTR
SCFW
SCRV
SCFW
SCRV
LSTR
Pick-up motor (M2)
Holding tray re-circulating lever home position sensor (PS19)
Holding tray weight solenoid (SL7)
Holding tray re-pick up roller solenoid (SL6)
Holding tray separation clutch (CL6)
Holding tray pick-up sensor (PS17)
Holding tray paper deflecting plate solenoid (SL8)
Holding tray forward clutch (CL5)
Holding tray inlet paper sensor (PS15)
Holding tray reversing clutch (CL4)
Holding tray registration paper sensor (PS14)
Holding tray registration clutch (CL3)
Holding tray feeding assembly 2 paper sensor (PS9)
Registration paper sensor (PS23)

Figure 3-430

N. Reversal Delivery

The reversal delivery feeding path is formed by the delivery paper deflecting plate lifted by the delivery deflecting plate solenoid (SL2).

The delivery deflecting plate operates as soon as the registration clutch (CL9) turns ON, thereby forwarding the paper in the direction of the holding tray.

As specific period of time after the trailing edge of copy paper has moved past the fixing assembly outlet sensor (PS47), the holding tray forward clutch (CL5) turns OFF and, at the same time, the holding tray reversing clutch (CL4) turns ON.

This condition causes the roller inside the holding tray to rotate in reverse, feeding the copy paper in the direction of delivery. (Figure 3-433)

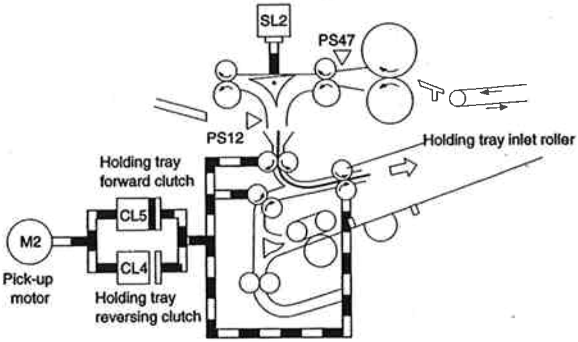

SL2
PS47
PS12
Holding tray inlet roller
Holding tray forward clutch
CL5
M2
Pick-up motor
CL4
Holding tray reversing clutch

Figure 3-431 (CW operation)

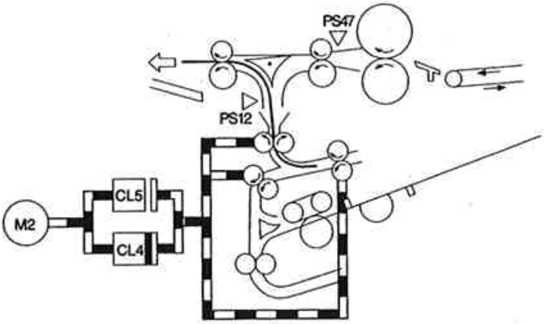

PS47
PS12
CL5
M2
CL4

Figure 3-432 (CCW operation)

1. Sequence of Reversal Delivery Operations

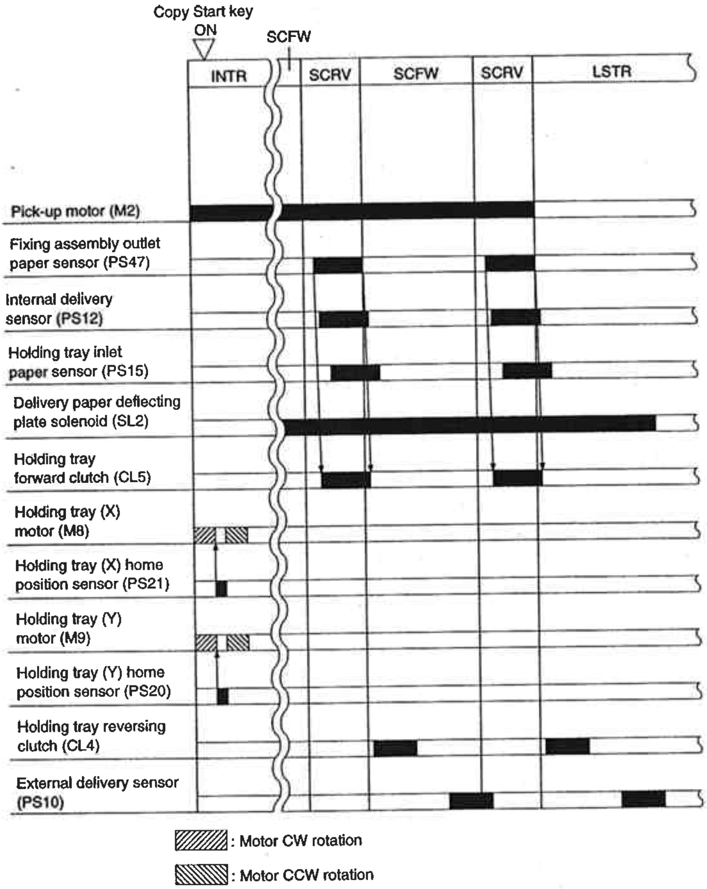


Figure 3-433

O. Switching Paper Sizes for Two-Sided/Overlay/Reversal Delivery Copies

1. Movement of the Paper Size Guide

When the Copy Start key is pressed in two-sided/overlay/reversal delivery copy mode, the holding tray (X, Y) motor (M8, M9) starts to rotate clockwise, and the paper size guide moves in the direction of the arrow (Figure 3-435).

When the light-blocking plate of the paper size guide blocks the holding tray (X, Y) home positions sensor (PS21 PS20), the motor (M8, M9) stops.

Then, the DC controller PCB sends a specific number of pulses to represent the size of the copy paper being used to the motor (M8, M9).

The motor, in response, rotates counterclockwise to move the paper size guide to the position appropriate to the copy size to wait for the arrival of copy paper.

While the second side is being copied, the motor (M8, M9) remains at rest; it remains at rest until the first side of the next copy is copied.

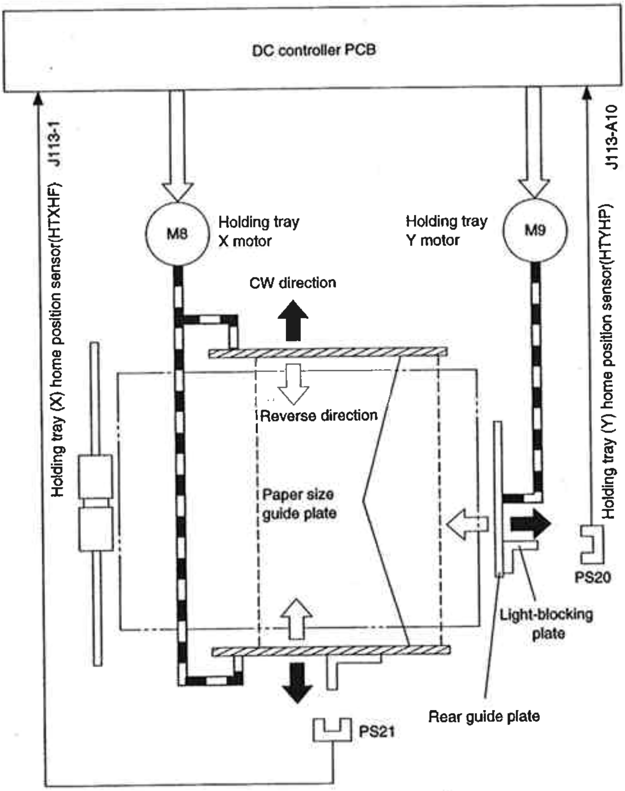

DC controller PCB
J113-1
Holding tray (X) home position sensor(HTXHF)
J113-A10
Holding tray (Y) home position sensor(HTYHP)
M8
Holding tray X motor
Holding tray Y motor
M9
CW direction
Reverse direction
Paper size guide plate
PS20
Light-blocking plate
Rear guide plate
PS21

Figure 3-434

2. Movement of the Paper Jogging Plate and the Rear Guide Plate

When copy paper reaches the holding tray assembly, the paper jogging plate (X direction) and the rear guide plate (Y direction) operate to arrange sheets of paper.

The holding tray paper jogging solenoid (SL9) on the holding tray paper guide plate is turned ON/OFF to operate the paper jogging plate to put the sheets of copy paper into order, thereby preventing skew movement for re-pick up.

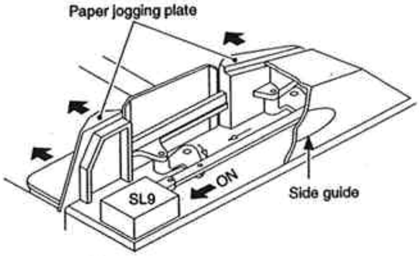


Figure 3-435

When copy paper reaches the holding tray assembly, the motor M9 rotates clockwise and counterclockwise to operate the rear guide plate to arrange the trailing edge of the copy paper.

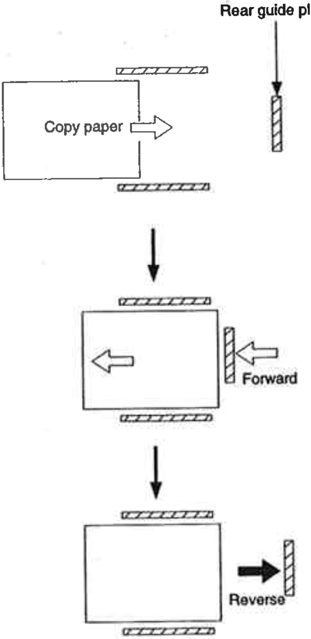


Figure 3-436

3. Detecting Copy Paper

Copy paper (last sheet) is detected for re-pick up from the holding tray.

When copy paper has been stacked on the holding tray, the holding tray re-circulating motor (M7) is driven to place the re-circulating lever on the top sheet of the stack. When the last sheet is picked up, the re-circulating lever falls through the holding tray, allowing the holding tray re-circulating lever home position sensor (PS19) to assume that the last sheet has been picked up and to generate the last sheet detection signal (HPLPD).

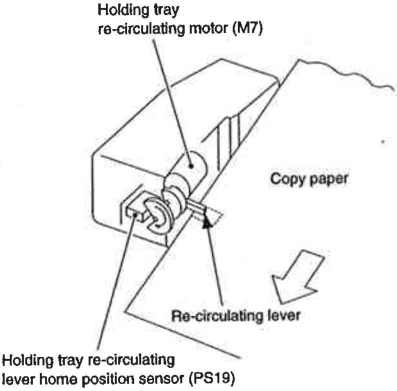

Holding tray
re-circulating motor (M7)
Copy paper
Re-circulating lever
Holding tray re-circulating
lever home position sensor (PS19)

Figure 3-437

P. Re-Pick Up from the Holding Tray

When the Copy Start key is pressed for copying on the second side, pick-up/separation operation is initiated.

In response to a press on the Copy Start key, the holding tray re-pick up solenoid (SL6) turns ON to rotate the holding tray re-pick up roller, sending the copy paper in the direction of the feeding roller/separation belt; at the same time, the holding tray weight solenoid (SL7) is turned ON to lower the weight plate on the copy paper to facilitate paper feeding.

If double feeding has occurred while paper is being moved in the direction of the feeding roller/separation belt, the separation belt pushes back the top sheet in the direction of the holding tray.

Reference:

The weight plate is lowered for re-pick up of the first sheet and the last sheet.

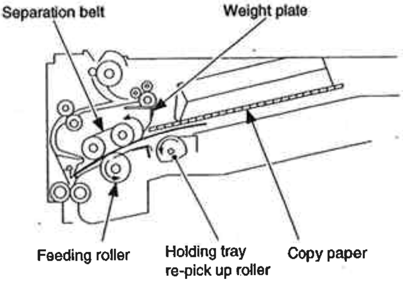

Separation belt
Weight plate
Feeding roller
Holding tray
re-pick up roller
Copy paper

Figure 3-438

Q. Skipping

1. Outline

What is termed *skipping* is a copy sequence used when making two-sided copies of one-sided originals by skipping every other original, thereby making efficient use of the space in the feeding assembly (holding tray assembly and holding tray feeding assembly) not taken up by copy paper.

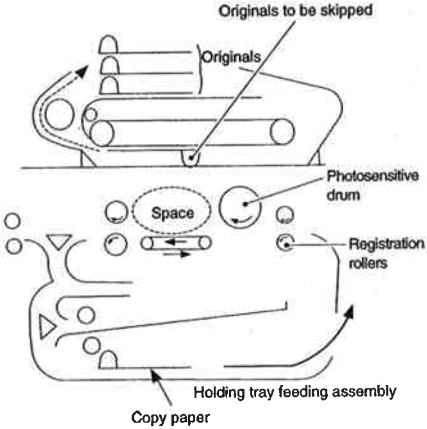

Originals to be skipped
Originals
Photosensitive drum
Space
Registration rollers
Holding tray feeding assembly
Copy paper

Figure 3-439

Skipping is executed automatically under the following conditions:

- The RDF is used to make two-sided copies of one-sided originals.
- The copy paper and the original are A4, B5, or LTR and are fed horizontally.
- Binding mode and cover mode are not used.
- No more than two sets of copies are specified.

2. Operation

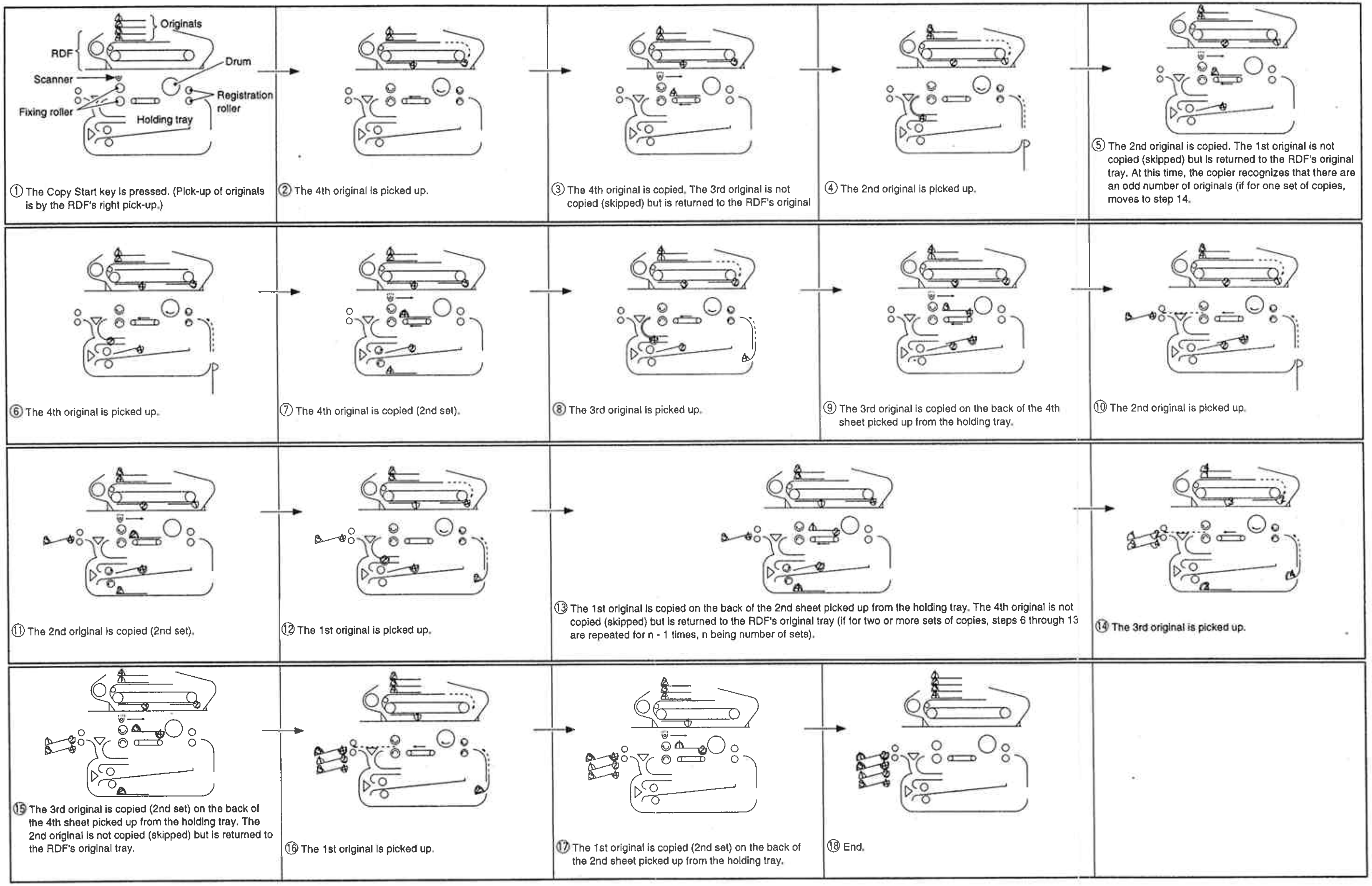
The originals are copied in the following sequence:

a. 4 Originals for 2 Sets of Copies
   4 (th original), 2, 4, 3, 2, 1, 3, and 1 (st original)
b. 5 Originals for 2 Sets of Copies
   5 (th original), 3, 1, 5, 4, 3, 2, 1, 4, and 2 (nd original)
c. 4 Originals for 1 Set of Copies
   4 (th original), 2, 3, and 1(st original)
d. 5 Originals for 1 Set of Copies
   5 (th original), 3, 1, 4, and 2 (nd original)

Reference:

Skipping may be disabled in user mode.

3. Skipping for an Odd Number of Originals



① The Copy Start key is pressed. (Pick-up of originals is by the RDF's right pick-up.)

② The 4th original is picked up.

③ The 4th original is copied. The 3rd original is not copied (skipped) but is returned to the RDF's original

④ The 2nd original is picked up.

⑤ The 2nd original is copied. The 1st original is not copied (skipped) but is returned to the RDF's original tray. At this time, the copier recognizes that there are an odd number of originals (if for one set of copies, moves to step 14.

⑥ The 4th original is picked up.

⑦ The 4th original is copied (2nd set).

⑧ The 3rd original is picked up.

⑨ The 3rd original is copied on the back of the 4th sheet picked up from the holding tray.

⑩ The 2nd original is picked up.

⑪ The 2nd original is copied (2nd set).

⑫ The 1st original is picked up.

⑬ The 1st original is copied on the back of the 2nd sheet picked up from the holding tray. The 4th original is not copied (skipped) but is returned to the RDF's original tray (if for two or more sets of copies, steps 6 through 13 are repeated for n - 1 times, n being number of sets).

⑭ The 3rd original is picked up.

⑮ The 3rd original is copied (2nd set) on the back of the 4th sheet picked up from the holding tray. The 2nd original is not copied (skipped) but is returned to the RDF's original tray.

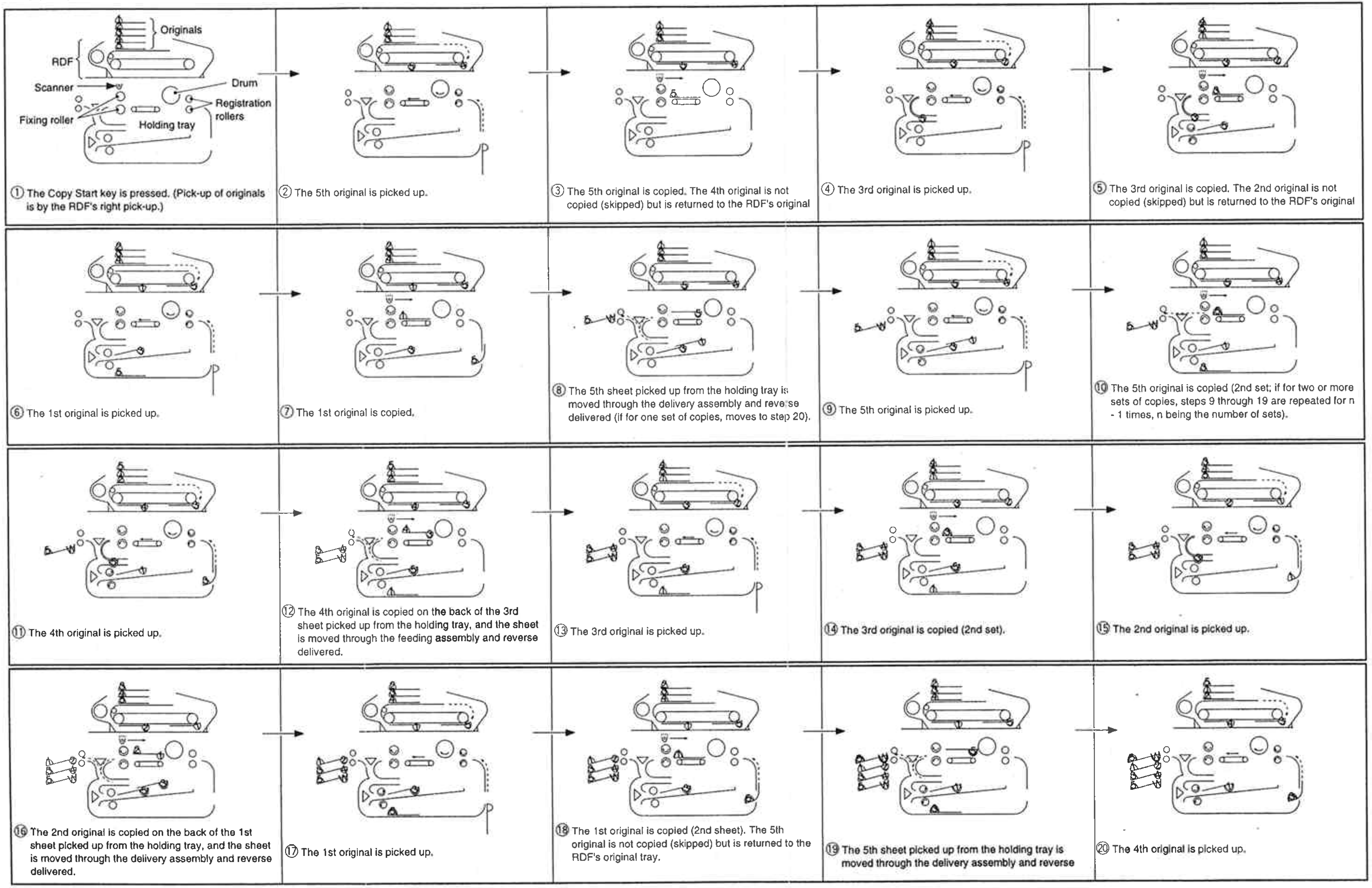
⑯ The 1st original is picked up.

⑰ The 1st original is copied (2nd set) on the back of the 2nd sheet picked up from the holding tray.

⑱ End.

Figure 3-441

4. Skipping for an Even Number of Originals



① The Copy Start key is pressed. (Pick-up of originals is by the RDF's right pick-up.)

② The 5th original is picked up.

③ The 5th original is copied. The 4th original is not copied (skipped) but is returned to the RDF's original

④ The 3rd original is picked up.

⑤ The 3rd original is copied. The 2nd original is not copied (skipped) but is returned to the RDF's original

⑥ The 1st original is picked up.

⑦ The 1st original is copied.

⑧ The 5th sheet picked up from the holding tray is moved through the delivery assembly and reverse delivered (if for one set of copies, moves to step 20).

⑨ The 5th original is picked up.

⑩ The 5th original is copied (2nd set; if for two or more sets of copies, steps 9 through 19 are repeated for n - 1 times, n being the number of sets).

⑪ The 4th original is picked up.

⑫ The 4th original is copied on the back of the 3rd sheet picked up from the holding tray, and the sheet is moved through the feeding assembly and reverse delivered.

⑬ The 3rd original is picked up.

⑭ The 3rd original is copied (2nd set).

⑮ The 2nd original is picked up.

⑯ The 2nd original is copied on the back of the 1st sheet picked up from the holding tray, and the sheet is moved through the delivery assembly and reverse delivered.

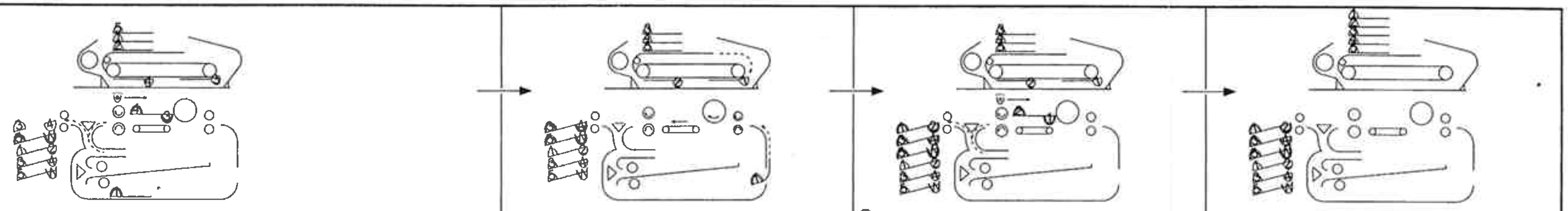
⑰ The 1st original is picked up.

⑱ The 1st original is copied (2nd sheet). The 5th original is not copied (skipped) but is returned to the RDF's original tray.

⑲ The 5th sheet picked up from the holding tray is moved through the delivery assembly and reverse

⑳ The 4th original is picked up.

Figure 3-442



㉑ The 4th original is copied (2nd set) on the back of the 3rd sheet picked up from the holding tray, and the sheet is moved through the delivery assembly and reverse delivered. The 3rd original is not copied (skipped) but is

㉒ The 2nd original is picked up.

㉓ The 2nd original (2nd set) is copied on the back of the 1st sheet picked up from the holding tray, and the sheet is moved through the delivery assembly and reverse delivered.

㉔ End.

Figure 3-443

5. Reverse Delivery

Reverse delivery is executed when an odd number of originals are copied in skipping mode or when reverse delivery is selected. In reverse delivery, the copies are turned over for delivery so that the copies are collated on the copy tray.

a. If the copies of an odd number of originals are stacked not using reverse delivery,

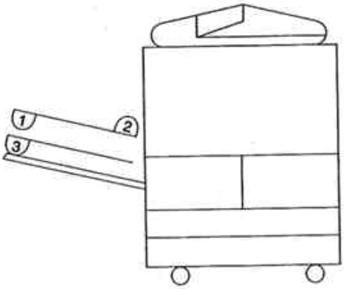


Figure 3-443a

b. If the copies of an odd number of originals are stacked using reverse delivery,

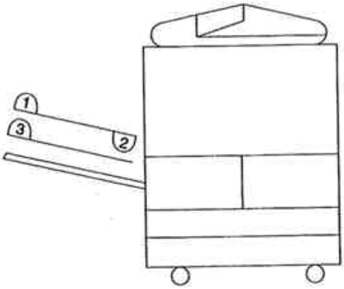


Figure 3-443b

R. Fixing/Delivery Assembly

1. Outline

The upper and lower rollers of the fixing assembly and the delivery roller are driven by the main motor (M1) through clutches. (See Figure 3-445.)

The upper roller is equipped with two built-in heaters; the sub heater is turned on during WMUP after power-on, and the main heater is turned on/off during WMUP and thereafter for temperature control. (See Figure 3-445.)

The surface temperature of the upper roller is monitored by a thermistor (TH1) and is controlled by the DC controller so that it remains at the target value.

The cleaning belt for the upper fixing roller is operated by a one-way clutch method using a solenoid (SL14; fixing cleaning belt drive solenoid).

When 250,000 copies (including both small- and large-size copies) have been made, the message "The cleaning web needs to be replaced" is indicated on the control panel in service mode (*6*; WEB).

The length of the cleaning belt is monitored by keeping the cleaning belt detecting lever in contact with the belt. The cleaning belt detecting lever shifts as the belt is used and fed, and 'E005' is indicated on the control panel when it blocks the sensor PS11.

The delivery assembly is equipped with a delivery paper deflecting plate; the DC controller PCB generates the delivery flapper solenoid drive signal while making two-sided/overlay copies to turn ON the delivery flapper solenoid (SL2), thereby driving the delivery flapper and, as a result, sending copy paper to the holding tray.

The cleaning belt drive solenoid (SL14) is used to trigger the external delivery sensor (PS10).

Number of Activations

- twice for large-size copy
- once for small-size copy

Reference:

1.115V model 800 + 400 W
220/240 model 1200 W
2.Thermal switch: 240 ±10°C

2. Fixing Drive Assembly

If a jam occurs in the fixing delivery assembly, the DC controller PCB generates the fixing drive stop signal to turn ON the fixing drive stop solenoid (SL3), thereby immediately stopping the fixing roller.

The belt used to clean the upper fixing roller is taken up gradually when the cleaning belt take-up arm is moved up and down by the cleaning belt drive solenoid (SL14).

The cleaning belt guide serves to keep the area of contact between the fixing roller and the cleaning belt large to prevent offset.

The fixing assembly inlet guide is shifted by turning ON/OFF the fixing assembly inlet guide drive solenoid (SL16), thereby changing its height and, ultimately, improving paper feeding.

The height differs at a point of about 130 mm after copying operation starts and the registration roller has rotated according to the following conditions:

- High if the length of the copy paper is equivalent to B5R or larger.
- Low if the length of the copy paper is shorter than the above.

In the case of the multifeeder (free size), the following applies to suit various lengths:

- High when starting copying operation.
- The same control as the above will be used by measuring the length of the first sheet when it moves past the registration paper sensor (PS23).

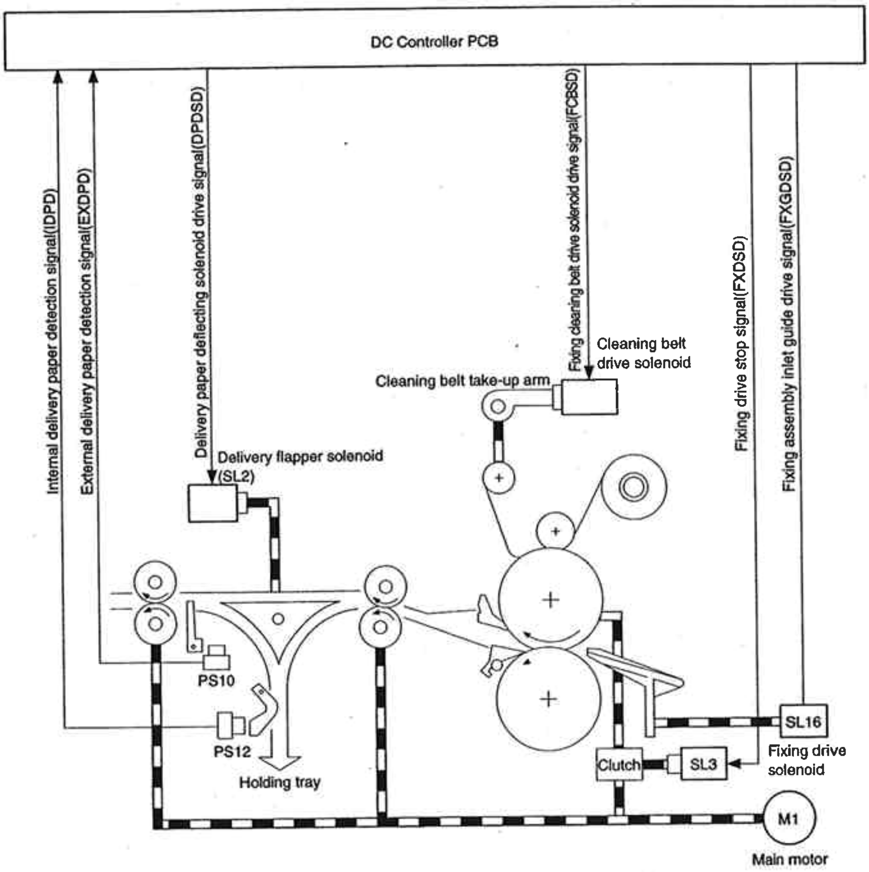

DC Controller PCB
Internal delivery paper detection signal(DPD)
External delivery paper detection signal(EXDPD)
Delivery paper deflecting solenoid drive signal(DPDSD)
Fixing cleaning belt drive solenoid drive signal(FCBSD)
Fixing drive stop signal(FXDSD)
Fixing assembly inlet guide drive signal(FXGDSD)
Cleaning belt drive solenoid
Cleaning belt take-up arm
Delivery flapper solenoid (SL2)
PS10
PS12
Holding tray
SL16
Fixing drive solenoid
Clutch
SL3
M1
Main motor

Figure 3-444

3. Controlling the Fixing Temperature

The surface temperature of the upper fixing roller is monitored by a thermistor (TH1), and the output of the thermistor is sent to the microprocessor.

Using the output, the microprocessor varies the main heater drive signal (MHRD) and the sub heater drive signal (SHRD) to control the fixing temperature.

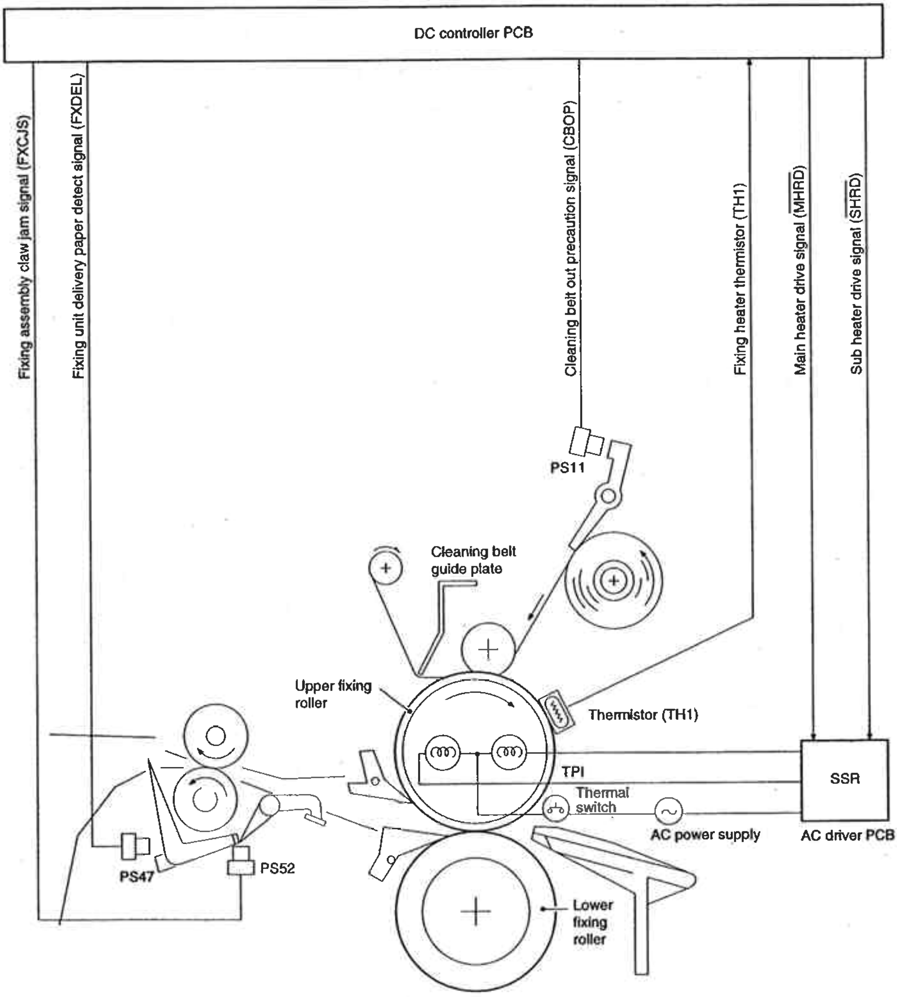

DC controller PCB
Fixing assembly claw jam signal (FXCJS)
Fixing unit delivery paper detect signal (FXDEL)
Cleaning belt out precaution signal (CBOP)
Fixing heater thermistor (TH1)
Main heater drive signal (MHRD)
Sub heater drive signal (SHRD)
PS11
Cleaning belt guide plate
Upper fixing roller
Thermistor (TH1)
TPI
Thermal switch
AC power supply
SSR
AC driver PCB
PS47
PS52
Lower fixing roller

Figure 3-445

The NP6050 uses the six types of control shown in Tables 3-406 and -407 in relation to the time that has elapsed from power-on and according to the ambient temperature.

- After 60 min from power-on and the surface of the fixing roller is 75°C,

Mode	Internal temperature	Control temperature	
		Standby	Copying
H mode	17°C or more	200°C	205°C
M mode	12° to 17°C	210°C	212°C
L mode	12°C	210°C	212°C

Table 3-406

- 60 min or more after power-on

Mode	Internal temperature	Control temperature	
		Standby	Copying
H mode	17°C or more	200°C	205°C
M mode	12° to 17°C	200°C	205°C
L mode	12°C	200°C	205°C

Table 3-407

In addition, control is also made under the following special conditions:

① Power Save Mode
When the Pre-Heat key is pressed, the following takes place (may be varied in user mode):

- Control Temperature during Pre-Heat Mode

Saving rate	Control	Recovery*
- 10%	180°C	50 sec
- 25%	155°C	90 sec
- 50%	110°C	155 sec
None	195°C	0

*From when the Pre-Heat key is pressed once again until the beginning of STBY.

Table 3-408

② Copy Speed Down Sequence
The NP6050 makes as many as 50 copies normally and 60 copies in stream reading mode (one-sided copies of one original). To ensure proper fixing, however, the sheet-to-sheet gap is increased if the thermistor (TH1) on the upper fixing roller detects the following surface temperature. (Stream reading is not available in the NP6445.)

Condition / Down sequence	60 min from power-on	60 sec and later after
50 cpm recovery mode	170°C	175°C
40 cpm mode	165°C	170°C
30 cpm mode	160°C	165°C
Copy stop	155°C	160°C
Stream	180°C	
60 cpm stream reading recovery	185°C	

Table 3-409

Note:
The temperature and the number of copies (40, 30 cpm, stop) for the NP6445's down sequence are the same; however, it uses 45 cpm recovery mode instead of 50 cpm recovery mode.

In down sequence, control is to 40 cpm and 30 cpm mode according to the surface temperature of the upper fixing roller. During the period, normal copying speed will be used once again if the surface temperature of the upper fixing roller reaches that shown in Table 3-409; however, if copying operation has been stopped once, WMUP sequence will be used until the surface temperature of the upper fixing roller reaches 195°C. (auto start)

For instance, if the aforementioned surface temperature is detected during copying operation, WMUP sequence will be started while indicating the remaining number of copies on the control panel. Then, the remaining number of copies will be made in response to a press on the Copy Start key as soon as auto start or STBY is activated.

■ Fixing Assembly Temperature Control Sequence

60 min after power-on with fixing roller surface temperature 75°C

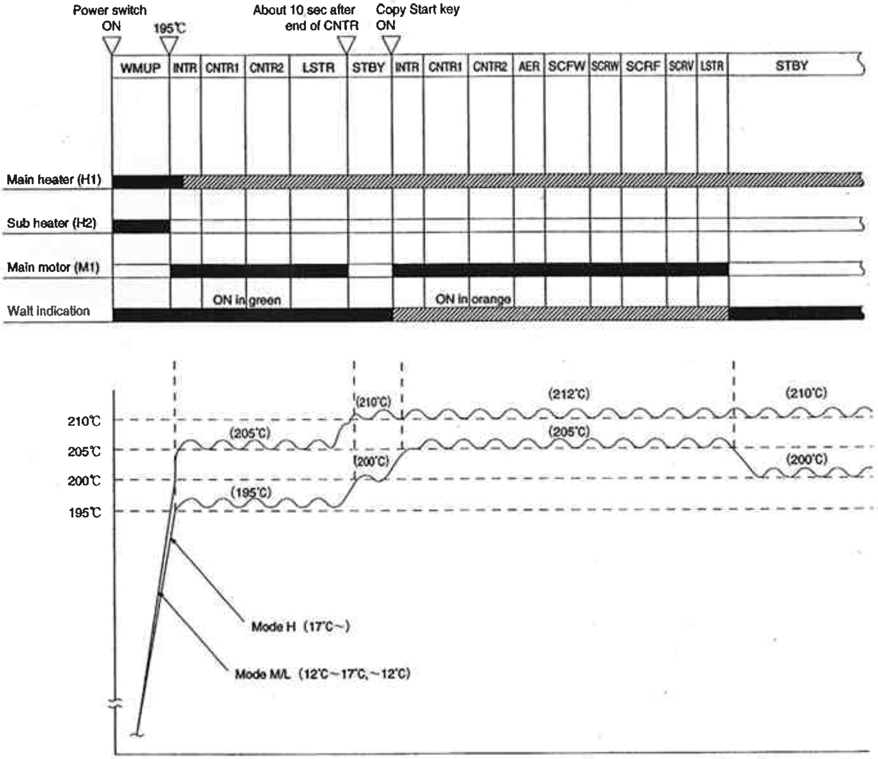
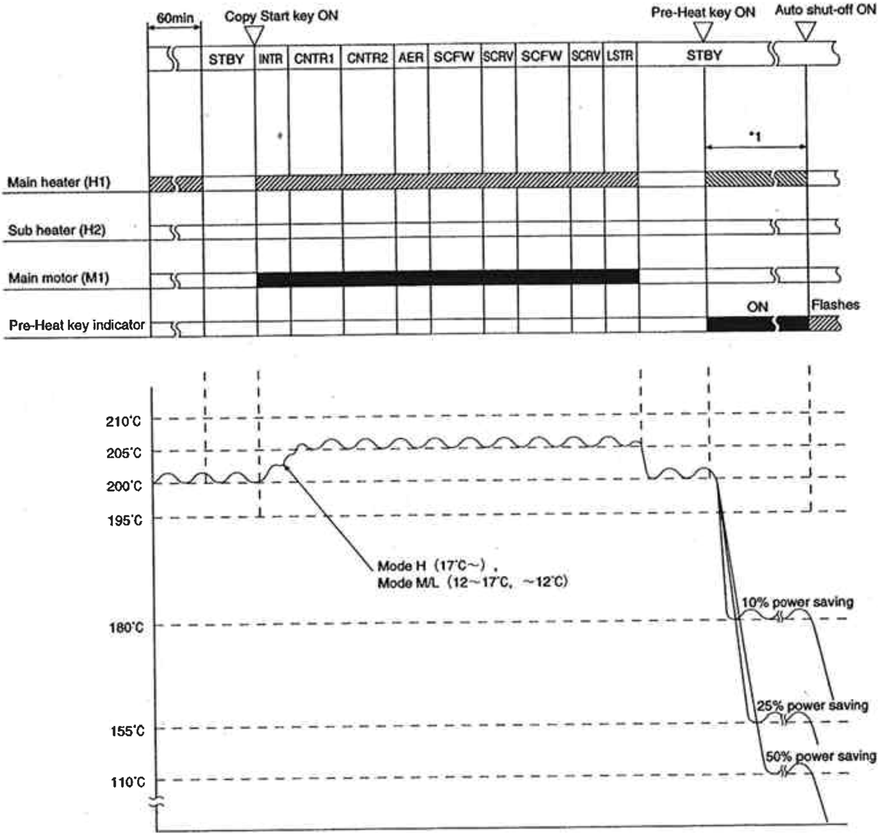

Power switch ON
195℃
About 10 sec after end of CNTR
Copy Start key ON
WMUP
INTR
CNTR1
CNTR2
LSTR
STBY
INTR
CNTR1
CNTR2
AER
SCFW
SCRW
SCRF
SCRV
LSTR
STBY
Main heater (H1)
Sub heater (H2)
Main motor (M1)
Wait indication
ON in green
ON in orange
210℃
205℃
200℃
195℃
(210°C)
(212°C)
(210°C)
(205°C)
(205°C)
(200°C)
(200°C)
(195°C)
Mode H (17°C~)
Mode M/L (12°C~17°C, ~12°C)

Figure 3-446


60min
Copy Start key ON
Pre-Heat key ON
Auto shut-off ON
STBY
INTR
CNTR1
CNTR2
AER
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
*1
Main heater (H1)
Sub heater (H2)
Main motor (M1)
Pre-Heat key indicator
ON
Flashes
210°C
205°C
200°C
195°C
Mode H (17°C~),
Mode M/L (12~17°C, ~12°C)
180°C
10% power saving
155°C
25% power saving
110°C
50% power saving

*1: May be varied in service mode.

Figure 3-447

4. Reciprocating Mechanism for the Thermistor

The thermistor is moved back and forth over a distance of 12 mm in the axial direction of the upper fixing roller to prevent damage to the roller.

The reciprocating cam is supplied with drive from the cleaning belt drive solenoid (SL14) through a one-way arm.

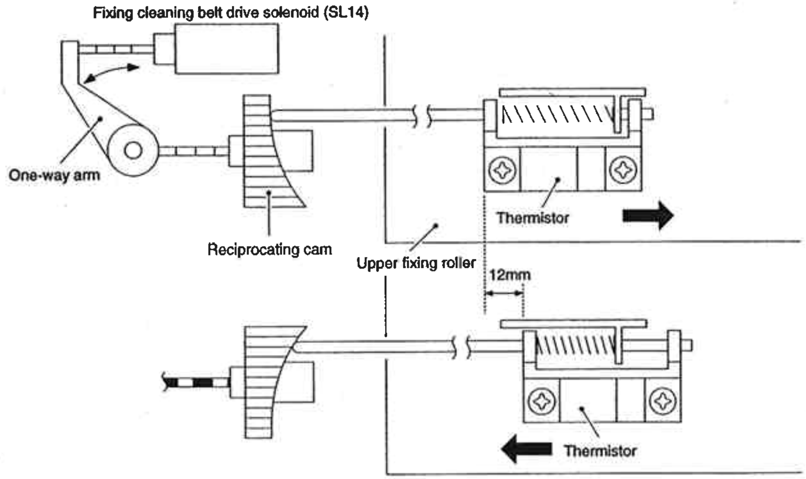

Fixing cleaning belt drive solenoid (SL14)
One-way arm
Reciprocating cam
Upper fixing roller
Thermistor
12mm
Thermistor

Figure 3-448

5. Reciprocating Mechanism for the Upper Separation Claw

The upper separation claw is moved back and forth over a distance of 3 mm in the axial direction of the upper fixing roller to prevent damage to the roller.

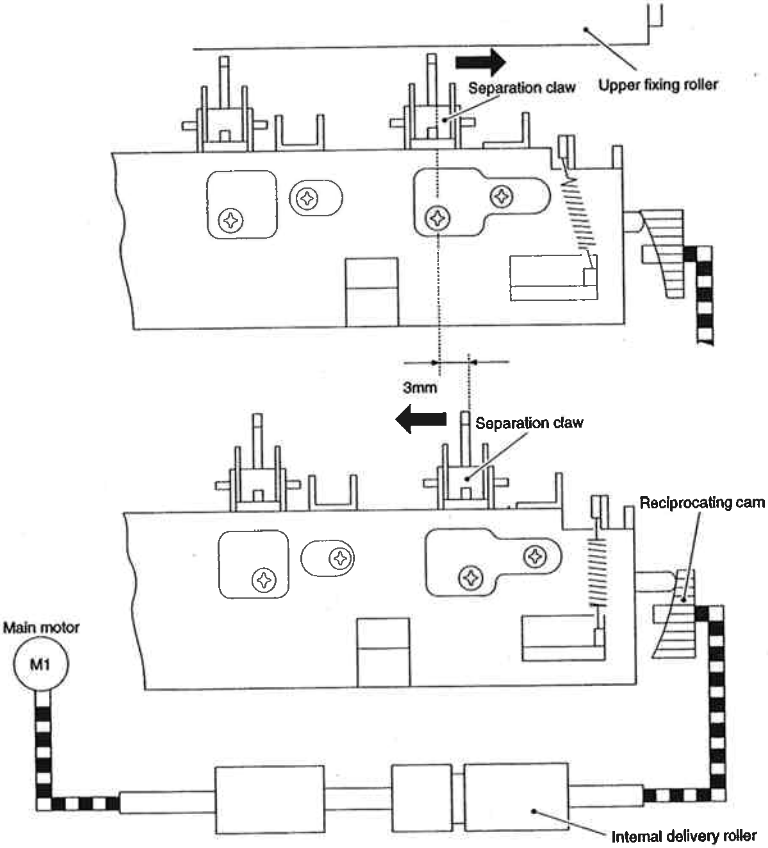

Separation claw
Upper fixing roller
3mm
Separation claw
Reciprocating cam
Main motor
M1
Internal delivery roller

Figure 3-449

S. Fixing Heater SSR Error Detection Circuit

The safety circuit for the NP6050's fixing heater SSR uses the following signals to identify an error:

1. Fixing main heater drive signal (MHRD)
2. Main heater ON detection signal (MHOND)
   Figure 3-451 shows the main heater only, but the sub heater is controlled in the same way.

Heater ON

The CPU causes the SSRON signal to go '0', and the MHRD signal goes '1' to turn ON the heater. At this time, the fixing feeding unit detection signal (FFURLS), power switch ON detection signal (MSWD), and front door open detection signal (FDOD) are '0'.

Heater OFF

The CPU causes the SSRON signal to go '1', and the MHRD signal goes '0' to turn OFF the heater.

SSR Error

If the main heater ON detection signal (MHOND) is '1' when the CPU on the DC controller PCB is not generating the fixing main heater drive signal (MHRD) or if the main heater ON detection signal (MHOND) is '0' when the CPU on the DC controller PCB is generating the fixing main heater drive signal (MHRD), an SSR error is identified and the CPU on the DC controller PCB indicates an error code.

At the same time, the power switch OFF signal (PWOFF) is caused to go '0' to cut off the AC circuit. When the power switch is turned OFF, power to the heater will be cut off; however, since the DC controller PCB is supplied with power for a specific period of time (see descriptions on the power supply), the power supply PCB sends the power switch ON detection signal (MSWD) to prevent activation of the relay inside the power switch in response to the PWOFF signal.

Since the NP6050's main heater ON detection signal (MHOND) is '1' even under the following conditions, the SSRON signal is kept '0' to avoid wrong detection of an SSR error:

1. When the fixing/feeding unit has been slid out (FFURLS signal: 1);
2. The front door is opened (FDOD signal: 1); and
3. The power switch has been turned OFF (MSWD signal: 1).

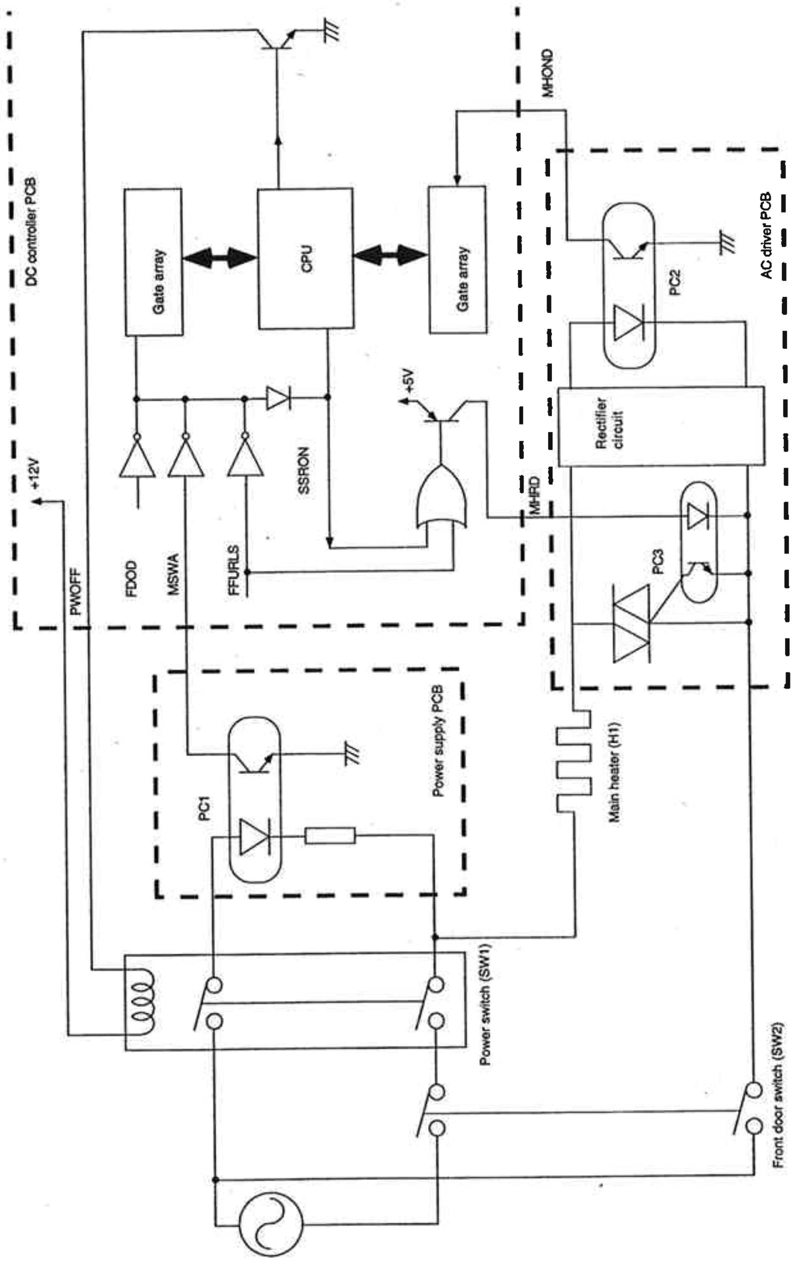

DC controller PCB
+12V
PWOFF
FDOD
MSWA
FFURLS
SSRON
Gate array
CPU
Gate array
+5V
MHOND
MHRD
AC driver PCB
PC2
Rectifier circuit
PC3
Power supply PCB
PC1
Main heater (H1)
Power switch (SW1)
Front door switch (SW2)

Figure 3-450

T. Detecting Jams

1. Outline

As many as 17 sensors are arranged as shown in Figure 3-452 to check if copy paper is moving properly. The microprocessor reads signals from sensors at such times as programmed to detect jams. When the microprocessor detects a jam, it discharges all sheets moving ahead of the jam and stops the ongoing operation; thereafter, it indicates instructions on jam removal on the control panel.

If the jam is in the pick-up assembly (Figure 3-452), control of the fixing assembly temperature is continued throughout jam removal work unless paper has been picked up from the multifeeder.

The sheets existing on the holding tray at time of a jam are picked up after jam removal. (This, however, does not apply if the holding tray has been removed for jam removal.)

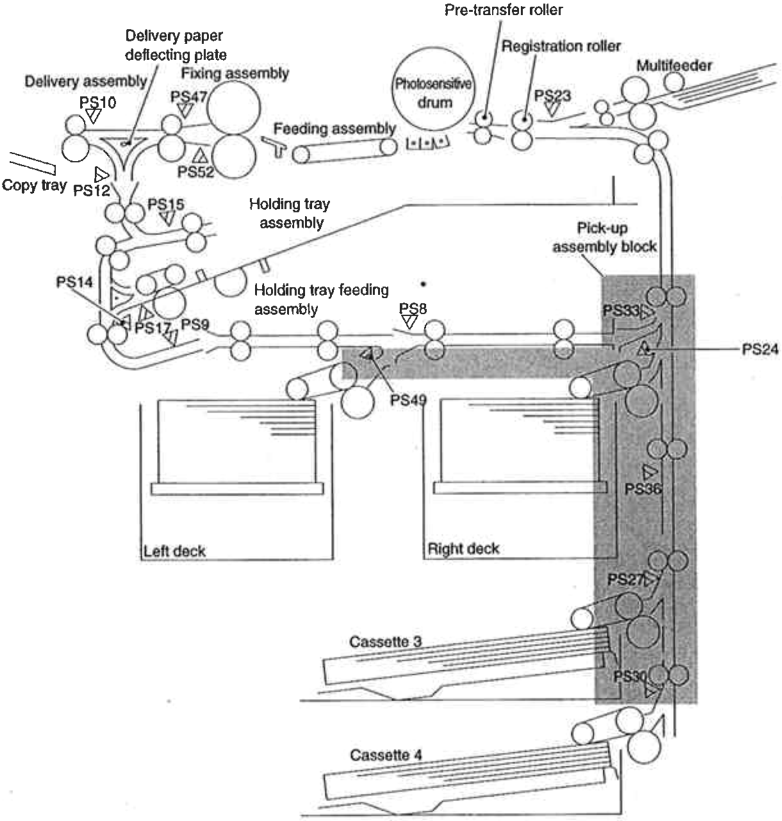

Pre-transfer roller
Delivery paper deflecting plate
Registration roller
Multifeeder
Delivery assembly
Fixing assembly
PS10
PS47
Photosensitive drum
PS23
Feeding assembly
PS52
Copy tray
PS12
PS15
Holding tray assembly
Pick-up assembly block
PS14
Holding tray feeding assembly
PS8
PS33
PS24
PS17
PS9
PS49
Left deck
Right deck
PS36
PS27
Cassette 3
PS30
Cassette 4

Figure 3-451

Sensor No.	Name	Function
PS08	Holding tray feeding assembly 1 paper sensor	Detects delay/stationary jams.
PS09	Holding tray feeding assembly 2 paper sensor	Detects delay/stationary jams.
PS10	External delivery sensor	Detects delay/stationary jams.
PS12	Internal delivery sensor	Detects stationary jams.
PS14	Holding tray registration paper sensor	Detects delay/stationary jams.
PS15	Holding tray inlet paper sensor	Detects delay/stationary jams.
PS17	Holding tray pick-up sensor	Detects delay jams.
PS19	Holding tray re-circulating lever home position	Detects paper on holding tray.
PS23	Registration paper sensor	Detects delay/stationary jams.
PS24	Pick-up vertical path 0 paper sensor	Detects delay/stationary jams.
PS27	Pick-up vertical path 3 paper sensor	Detects delay/stationary jams.
PS30	Pick-up vertical path 4 paper sensor	Detects delay/stationary jams.
PS33	Pick-up vertical path 1 paper sensor	Detects delay/stationary jams.
PS36	Pick-up vertical path 2 paper sensor	Detects delay/stationary jams.
PS47	Fixing assembly outlet paper sensor	Detects delay/stationary jams.
PS49	Left deck pick-up sensor	Detects delay/stationary jams.
PS52	Claw jam sensor	Detects stationary jams

Table 3-410

The microprocessor identifies any of the following conditions as a jam:

a. Paper exists over a sensor at power-on, at the end of wait-up, or during standby.

b. Delay jams are detected when copy paper does not reach a specific sensor within a specific period of time.

1. Registration roller delay jam by the registration paper sensor (PS23).
2. Pick-up vertical path feeding delay jam by the pick-up vertical path 1 paper sensor (PS33).
3. Pick-up vertical path feeding delay jam by the pick-up vertical path 0 paper sensor (PS24).
4. Pick-up vertical path feeding delay jam by the pick-up vertical path 2 paper sensor (PS36).
5. Pick-up vertical path feeding delay jam by the pick-up vertical path 3 paper sensor (PS27).
6. Pick-up vertical path feeding delay jam by the pick-up vertical path 4 paper sensor (PS30).
7. Fixing feeding re-pick up delay jam by the fixing assembly outlet paper sensor (PS47)
8. External delivery delay jam by the external delivery sensor (PS10).
9. Holding tray inlet delay jam by the holding tray inlet paper sensor (PS15).
10. Holding tray pick-up delay jam by the holding tray pick-up sensor (PS17).
11. Holding tray registration delay jam by the holding tray registration paper sensor (PS14).
12. Holding tray feeding assembly 2 delay jam by the holding tray feeding assembly 2 paper sensor (PS9).
13. Holding tray feeding assembly 1 delay jam by the holding tray feeding 1 paper sensor (PS8)

c. Stationary jams are detected when paper does not move past a specific sensor within a specific period of time.

1. Registration roller stationary jam by the registration paper sensor (PS23)
2. Pick-up vertical path feeding stationary jam by the pick-up vertical path 1 paper sensor (PS33)
3. Pick-up vertical path feeding stationary jam by the pick-up vertical path 0 paper sensor (PS24)
4. Pick-up vertical path feeding stationary jam by the pick-up vertical path 2 paper sensor (PS36)
5. Pick-up vertical path feeding stationary jam by the pick-up vertical path 3 paper sensor (PS27)
6. Pick-up vertical path feeding stationary jam by the pick-up vertical path 4 paper sensor (PS30)
7. Fixing feeding re-pick up stationary jam by the fixing assembly outlet paper sensor (PS47)
8. External delivery stationary jam by the external delivery sensor (PS10)
9. Internal delivery stationary jam by the internal delivery paper sensor (PS12)
10. Holding tray inlet stationary jam by the holding tray inlet paper sensor (PS15)
11. Holding tray registration stationary jam by the holding tray registration paper sensor (PS14)
12. Holding tray feeding assembly 2 stationary jam by the holding tray feeding assembly 2 paper sensor (PS9)
13. Holding tray feeding assembly 1 stationary jam by the holding tray feeding assembly 1 paper sensor (PS8)

1. Registration Roller Delay Jam

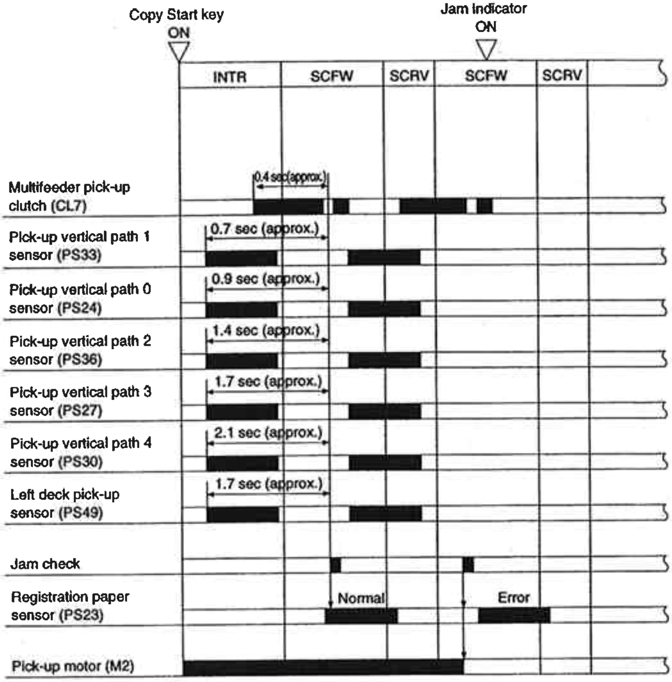
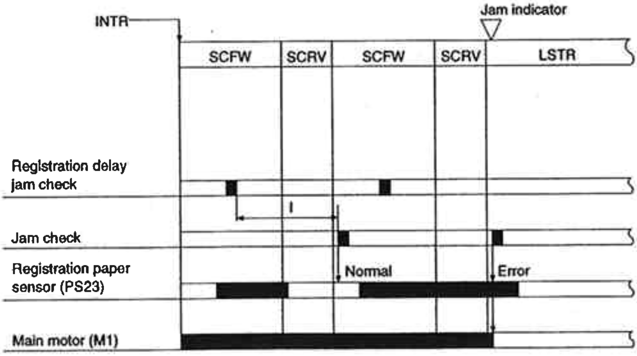


Figure 3-452

2. Registration Roller Stationary Jam



l: Varies according to the length of copy paper.

Figure 3-453

3. Pick-Up Vertical Path Feeding 0/1 Delay Jam

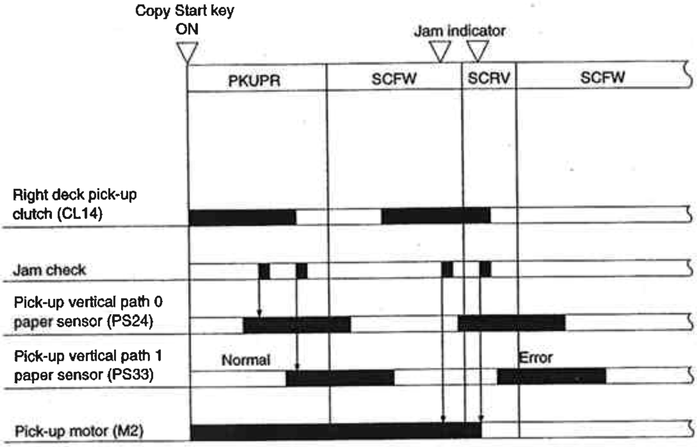
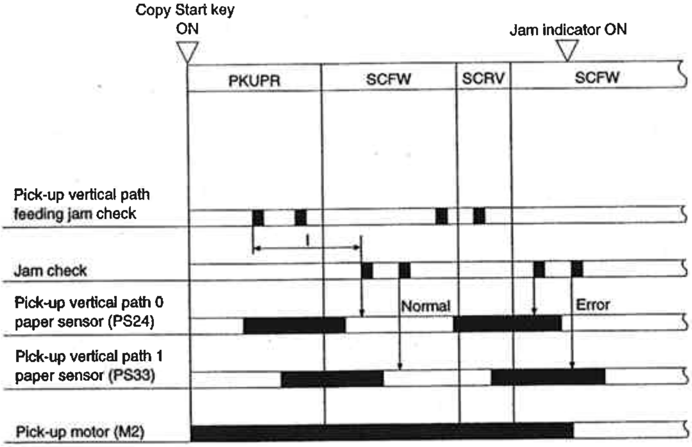

Copy Start key ON
Jam indicator
PKUPR
SCFW
SCRV
SCFW
Right deck pick-up clutch (CL14)
Jam check
Pick-up vertical path 0 paper sensor (PS24)
Pick-up vertical path 1 paper sensor (PS33)
Normal
Error
Pick-up motor (M2)

Figure 3-454

4. Pick-Up Vertical Path Feeding 0/1 Stationary Jam


Copy Start key ON
Jam indicator ON
PKUPR
SCFW
SCRV
SCFW
Pick-up vertical path feeding jam check
l
Jam check
Pick-up vertical path 0 paper sensor (PS24)
Normal
Error
Pick-up vertical path 1 paper sensor (PS33)
Pick-up motor (M2)

l: Varies according to the length of copy paper.

Figure 3-455

5. Pick-Up Vertical Path Feeding 2–4 Delay Jam

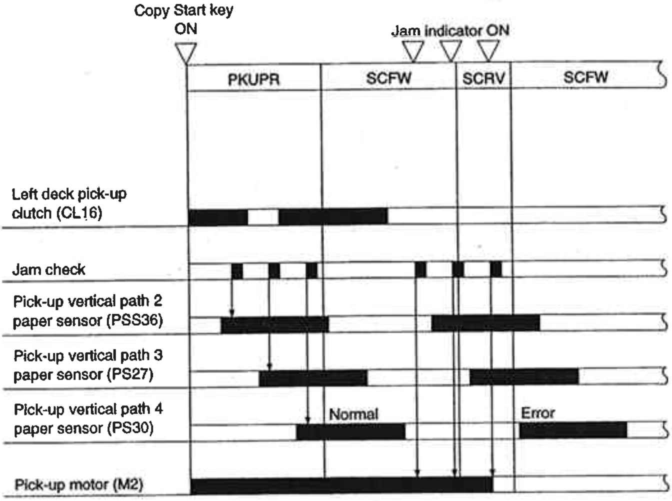
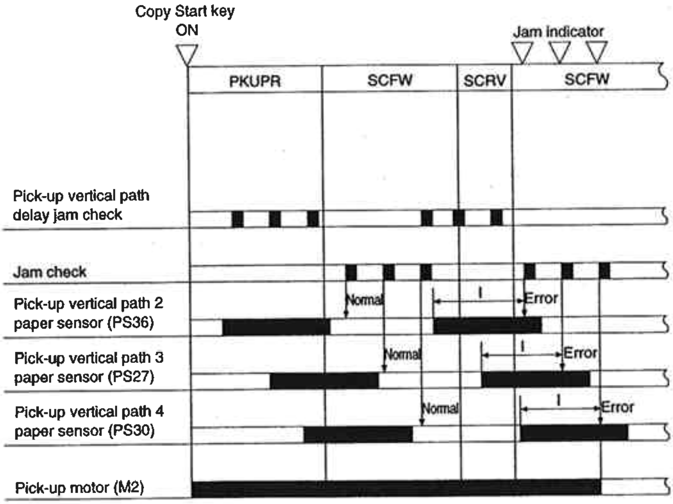

Copy Start key ON
Jam indicator ON
PKUPR
SCFW
SCRV
SCFW
Left deck pick-up clutch (CL16)
Jam check
Pick-up vertical path 2 paper sensor (PSS36)
Pick-up vertical path 3 paper sensor (PS27)
Pick-up vertical path 4 paper sensor (PS30)
Normal
Error
Pick-up motor (M2)

Figure 3-456

6. Pick-Up Vertical Path Feeding 2–4 Stationary Jam


Copy Start key ON
Jam indicator
PKUPR
SCFW
SCRV
SCFW
Pick-up vertical path delay jam check
Jam check
Pick-up vertical path 2 paper sensor (PS36)
Pick-up vertical path 3 paper sensor (PS27)
Pick-up vertical path 4 paper sensor (PS30)
Normal
Normal
Normal
l
l
l
Error
Error
Error
Pick-up motor (M2)

l: Varies according to the length of copy paper.

Figure 3-457

7. Fixing Assembly Outlet Delay Jam

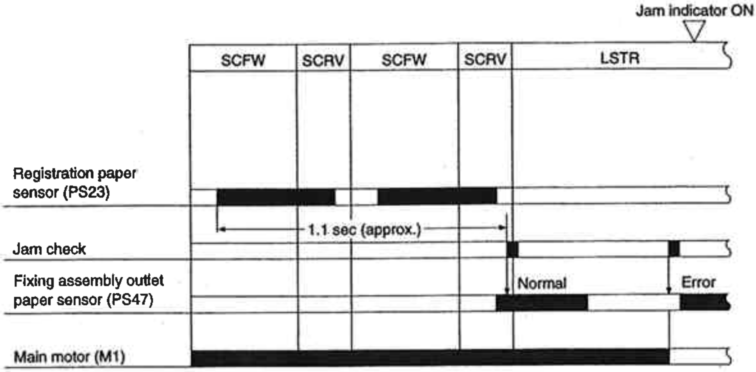
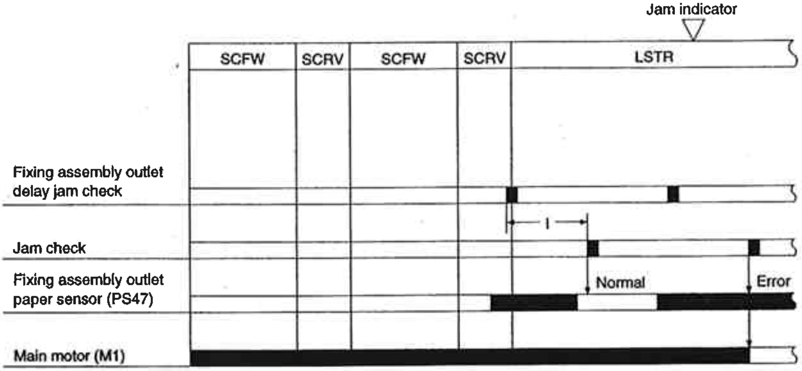

Jam indicator ON
SCFW
SCRV
SCFW
SCRV
LSTR
Registration paper sensor (PS23)
1.1 sec (approx.)
Jam check
Fixing assembly outlet paper sensor (PS47)
Normal
Error
Main motor (M1)

Figure 3-458

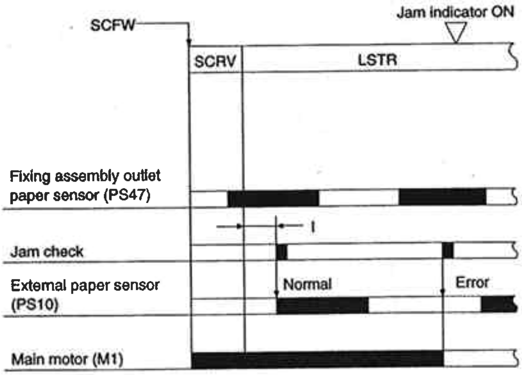
8. Fixing Assembly Outlet Stationary Jam


Jam indicator
SCFW
SCRV
SCFW
SCRV
LSTR
Fixing assembly outlet delay jam check
l
Jam check
Fixing assembly outlet paper sensor (PS47)
Normal
Error
Main motor (M1)

l: Varies according to the length of copy paper.

Figure 3-459

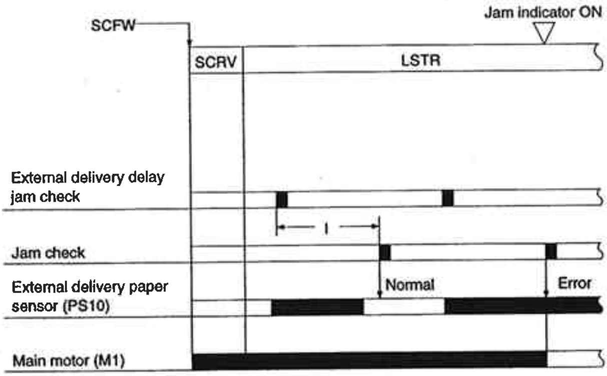
9. External Delivery Delay Jam


Jam indicator ON
SCFW
SCRV
LSTR
Fixing assembly outlet paper sensor (PS47)
l
Jam check
External paper sensor (PS10)
Normal
Error
Main motor (M1)

l: About 0.25 sec in normal delivery.
: Varies according to the length of copy paper in reverse delivery.

Figure 3-460

10.External Delivery Stationary Jam


Jam indicator ON
SCFW
SCRV
LSTR
External delivery delay jam check
l
Jam check
External delivery paper sensor (PS10)
Normal
Error
Main motor (M1)

l: Varies according to the length of copy paper.

Figure 3-461

11. Internal Delivery Delay Jam

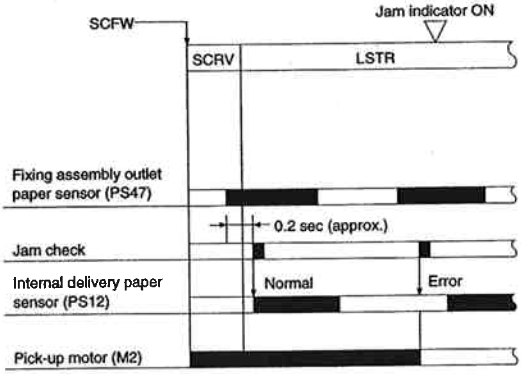
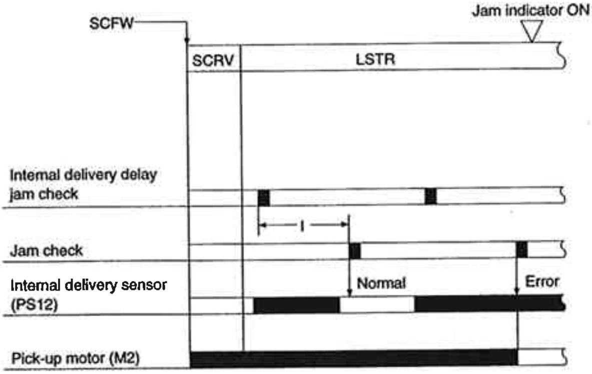

SCFW
Jam indicator ON
SCRV
LSTR
Fixing assembly outlet paper sensor (PS47)
0.2 sec (approx.)
Jam check
Internal delivery paper sensor (PS12)
Normal
Error
Pick-up motor (M2)

Figure 3-462

12. Internal Delivery Paper Stationary Jam


SCFW
Jam indicator ON
SCRV
LSTR
Internal delivery delay jam check
l
Jam check
Internal delivery sensor (PS12)
Normal
Error
Pick-up motor (M2)

l: Varies according to the length of copy paper.

Figure 3-463

13.Holding Tray Inlet Delay Jam

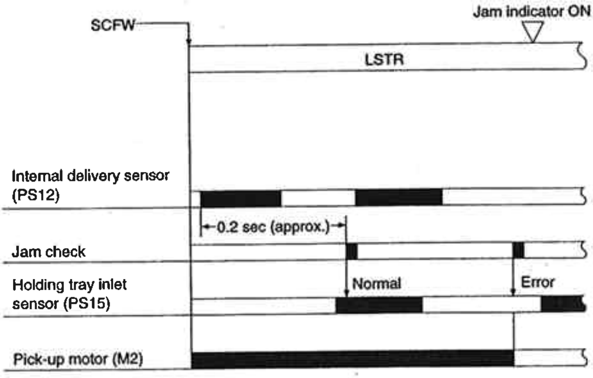
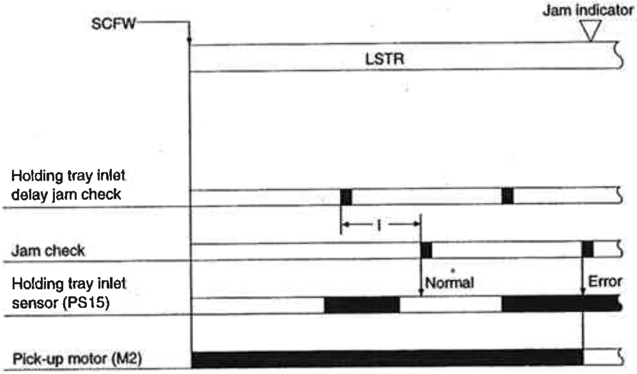

SCFW
Jam indicator ON
LSTR
Internal delivery sensor (PS12)
0.2 sec (approx.)
Jam check
Holding tray inlet sensor (PS15)
Normal
Error
Pick-up motor (M2)

Figure 3-464

14.Holding Tray Inlet Stationary Jam


SCFW
Jam indicator
LSTR
Holding tray inlet delay jam check
I
Jam check
Holding tray inlet sensor (PS15)
Normal
Error
Pick-up motor (M2)

I: Varies according to the length of copy paper.

Figure 3-465

15.Holding Tray Re-Pick Up Delay Jam

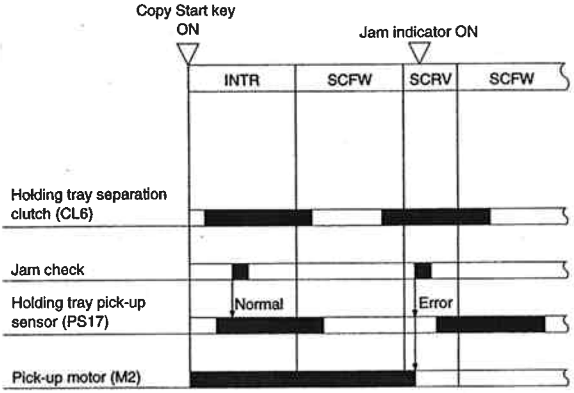
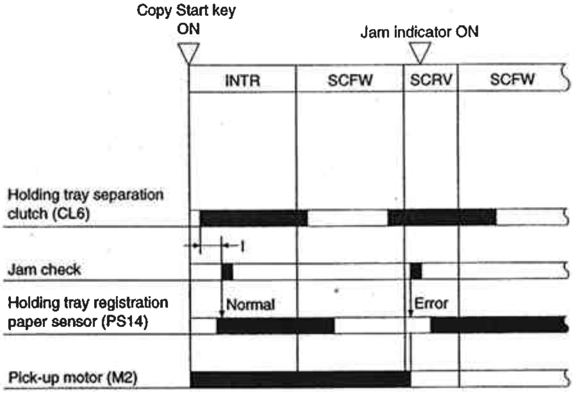

Copy Start key ON
Jam indicator ON
INTR
SCFW
SCRV
SCFW
Holding tray separation clutch (CL6)
Jam check
Holding tray pick-up sensor (PS17)
Normal
Error
Pick-up motor (M2)

Figure 3-466

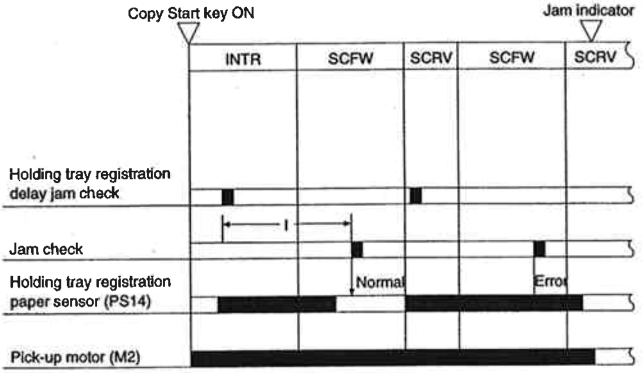
16.Holding Tray Registration Delay Jam


Copy Start key ON
Jam indicator ON
INTR
SCFW
SCRV
SCFW
Holding tray separation clutch (CL6)
I
Jam check
Holding tray registration paper sensor (PS14)
Normal
Error
Pick-up motor (M2)

I: 0.1 sec in two-sided copying.
: Varies according to the length of copy paper in overlay copying.

Figure 3-467

17.Holding Tray Registration Stationary Jam


Copy Start key ON
Jam indicator
INTR
SCFW
SCRV
SCFW
SCRV
Holding tray registration delay jam check
l
Jam check
Holding tray registration paper sensor (PS14)
Normal
Error
Pick-up motor (M2)

l: Varies according to the length of copy paper.

Figure 3-468

18.Holding Tray Feeding 1/2 Delay Jam

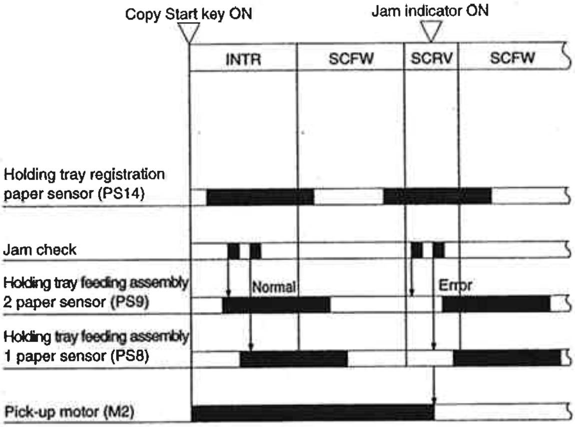

Copy Start key ON
Jam indicator ON
INTR
SCFW
SCRV
SCFW
Holding tray registration paper sensor (PS14)
Jam check
Holding tray feeding assembly 2 paper sensor (PS9)
Normal
Error
Holding tray feeding assembly 1 paper sensor (PS8)
Pick-up motor (M2)

Figure 3-469

19.Holding Tray Feeding 1/2 Stationary Jam

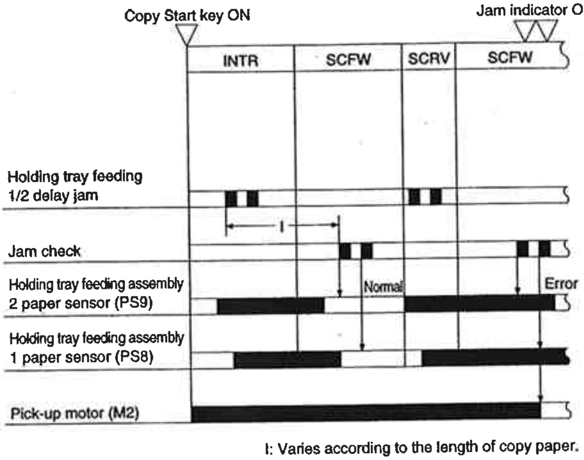

Copy Start key ON
Jam indicator ON
INTR
SCFW
SCRV
SCFW
Holding tray feeding 1/2 delay jam
l
Jam check
Holding tray feeding assembly 2 paper sensor (PS9)
Normal
Error
Holding tray feeding assembly 1 paper sensor (PS8)
Pick-up motor (M2)
l: Varies according to the length of copy paper.

Figure 3-470

20.Left Deck Pick-Up Delay Jam

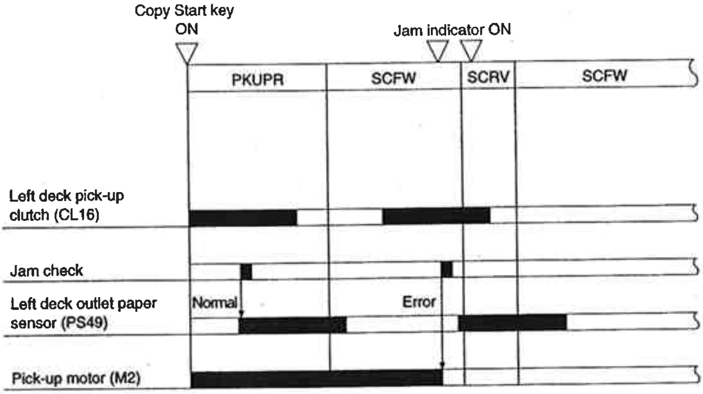

Copy Start key ON
Jam indicator ON
PKUPR
SCFW
SCRV
SCFW
Left deck pick-up clutch (CL16)
Jam check
Left deck outlet paper sensor (PS49)
Normal
Error
Pick-up motor (M2)

Figure 3-471

21.Left Deck Pick-Up Stationary Jam

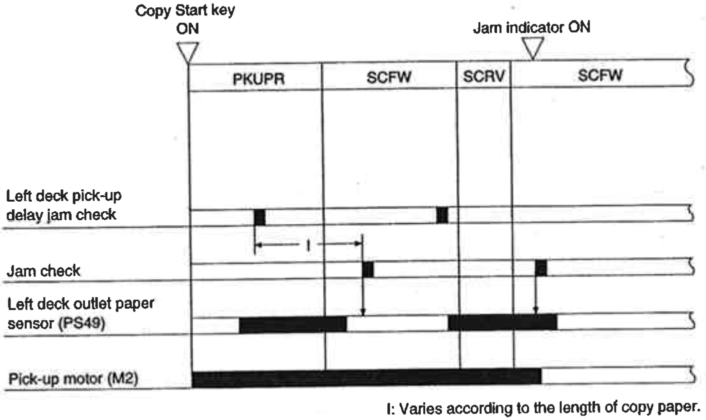

Copy Start key
ON
Jam indicator ON
PKUPR
SCFW
SCRV
SCFW
Left deck pick-up
delay jam check
l
Jam check
Left deck outlet paper
sensor (PS49)
Pick-up motor (M2)
l: Varies according to the length of copy paper.

Figure 3-472

2. Locking the Fixing/Feeding Unit

If a jam straddles the fixing/feeding unit and the holding tray unit when the copier stops because of a jam, i.e., paper exists over the internal delivery sensor (PS12), the main motor (M1) and the fixing/feeding unit locking solenoid (SL13) are turned ON for about 3 sec.

This way, the locking lever is lowered from the fixing/feeding unit to the rear of the holding tray unit.

If the fixing/feeding unit is slid out for jam removal, the holding tray unit will also be slid out to prevent tearing of the straddling paper.

The locking is released when the main motor rotates during initial rotation after jam removal.

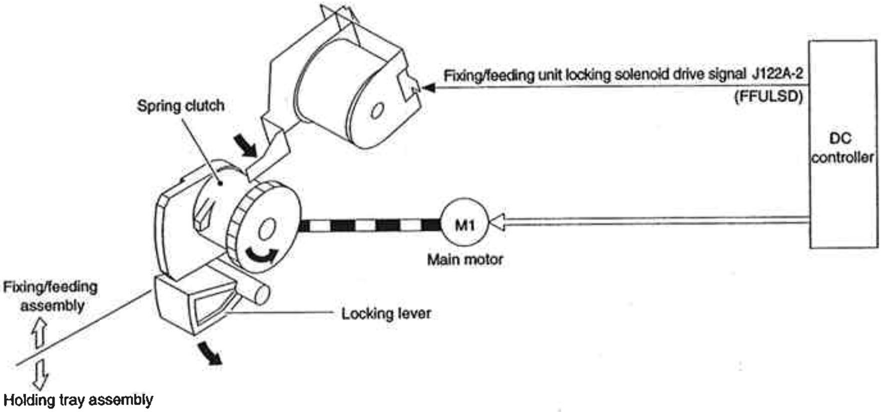

Fixing/feeding unit locking solenoid drive signal J122A-2
(FFULSD)
Spring clutch
DC controller
M1
Main motor
Fixing/feeding assembly
Locking lever
Holding tray assembly

Figure 3-473

U. Error Detection Circuit

1. Outline

Figure 3-475 is a control block diagram of the error detection circuit, which has the following functions:

a. monitoring the activation of the scanning lamp (LA1).
b. monitoring the activation of the fixing heaters (main, H1; sub, H2).
c. monitoring the rotation of each motor in normal reading and stream reading.

Each of these functions is executed by the gate arrays of the DC controller PCB.

The condition of each load is checked by the gate arrays; and after checking for the presence/absence of an error, they send the results to the master CPU.

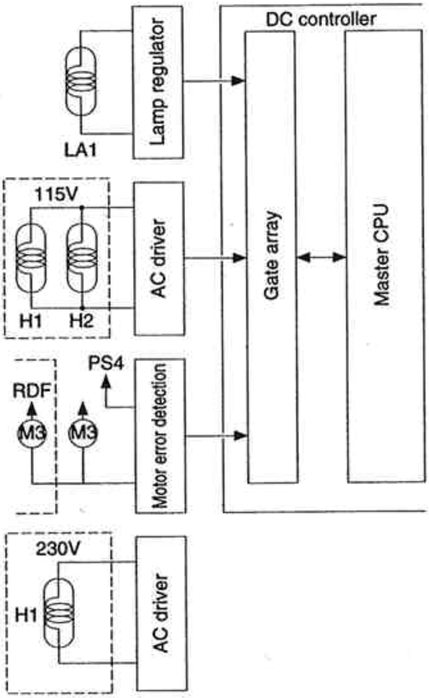

DC controller
Lamp regulator
LA1
115V
H1
H2
AC driver
Gate array
Master CPU
RDF
PS4
M3
M3
Motor error detection
230V
H1
AC driver

Figure 3-474

2. Scanning Lamp Error Activation Detection Circuit

The gate array is designed to receive the scanning lamp ON signal (CVRON) and the scanning lamp ON detection signal (CVRACTIVE). It detects an error if the scanning lamp is ON in the absence of the scanning lamp ON signal.

In such cases, the gate array informs the master CPU of the error detection of the scanning lamp and, at the same time, generates the power switch OFF signal.

In this condition, the relay in the power switch is powered to turn OFF the power switch, thereby stopping the AC power supply (error auto power-off).

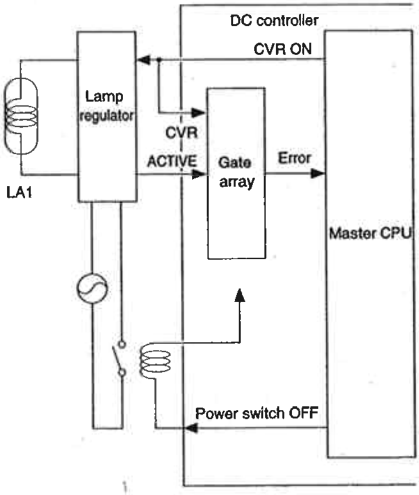

DC controller
CVR ON
Lamp regulator
CVR ACTIVE
Gate array
Error
Master CPU
LA1
Power switch OFF

Figure 3-475

3. Fixing Heater Error Activation Detection Circuit

The gate array generates the fixing heater ON signal (SSRON) and receives the fixing heater ON detection signal (SSR ACTIVE). An error is detected if the fixing heater is ON in the absence of the fixing heater ON signal.

In such cases, the gate array informs the master CPU of the error activation of the fixing heater and, at the same time, generates the power switch OFF signal.

The error signal (FUSER TEMP ERROR) of the thermistor used to monitor the temperature of the fixing roller is also sent to the gate array. The gate array generates the power switch OFF signal also when the surface temperature of the fixing roller increases abnormally.

When the power switch OFF signal is generated, the relay in the power switch becomes powered to turn OFF the power switch, thereby stopping the AC power supply (auto power-off).

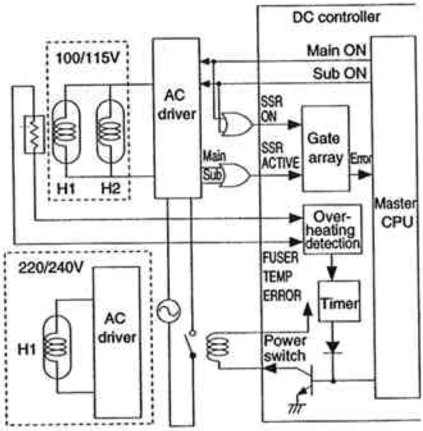

DC controller
Main ON
Sub ON
100/115V
AC driver
SSR ON
SSR ACTIVE
Gate array
Error
Main
Sub
H1
H2
Master CPU
Over-heating detection
FUSER TEMP ERROR
Timer
220/240V
AC driver
H1
Power switch

Figure 3-476

4. Motor Error Rotation Detection Circuit

The motor error rotation detection circuit checks error stops in relation to the scanner motor (M3), the RDF's belt motor (M3), and the copier's scanner original leading edge sensor 2 (PS4).

The gate array resets the DC controller in response to the motor error stop detection signal (ENCODER ERROR).

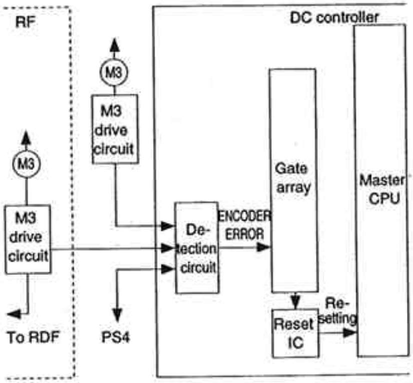

RF
DC controller
M3
M3 drive circuit
M3
M3 drive circuit
Gate array
Master CPU
De-tection circuit
ENCODER ERROR
Re-setting
Reset IC
To RDF
PS4

Figure 3-477

V. CONTROL PANEL

A. Outline

The NP6050's control panel consists of the control panel controller PCB, 320x240-dot liquid crystal display panel unit, transparent touch switch panel, and key switch panel, and it provides the following functions:

① Data communication
② LCD processing
③ LCD contrast automatic adjustment
④ Touch switch input
⑤ Key switch input

B. Operation

1. Data Communication

The control panel controller PCB exchanges data with the copier's image processor PCB through an interface unit in serial.

The microprocessor on the control panel controller PCB serves to control such data communications.

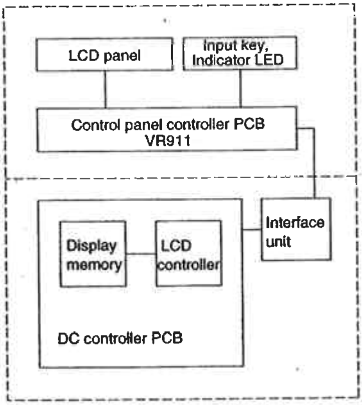


Figure 3-501

2. LCD Processing

The microprocessor on the DC controller PCB sends commands to the LCD controller as necessary; in response, the LCD controller interprets these commands and execute them. The LCD controller serves to turn ON/OFF the indicators according to the appropriate instructions.

The LCD controller, in addition, is used to write display character codes in sequence to RAM for display memory; the RAM data for display memory is sent for display to the display panel at such times as instructed by the LCD controller.

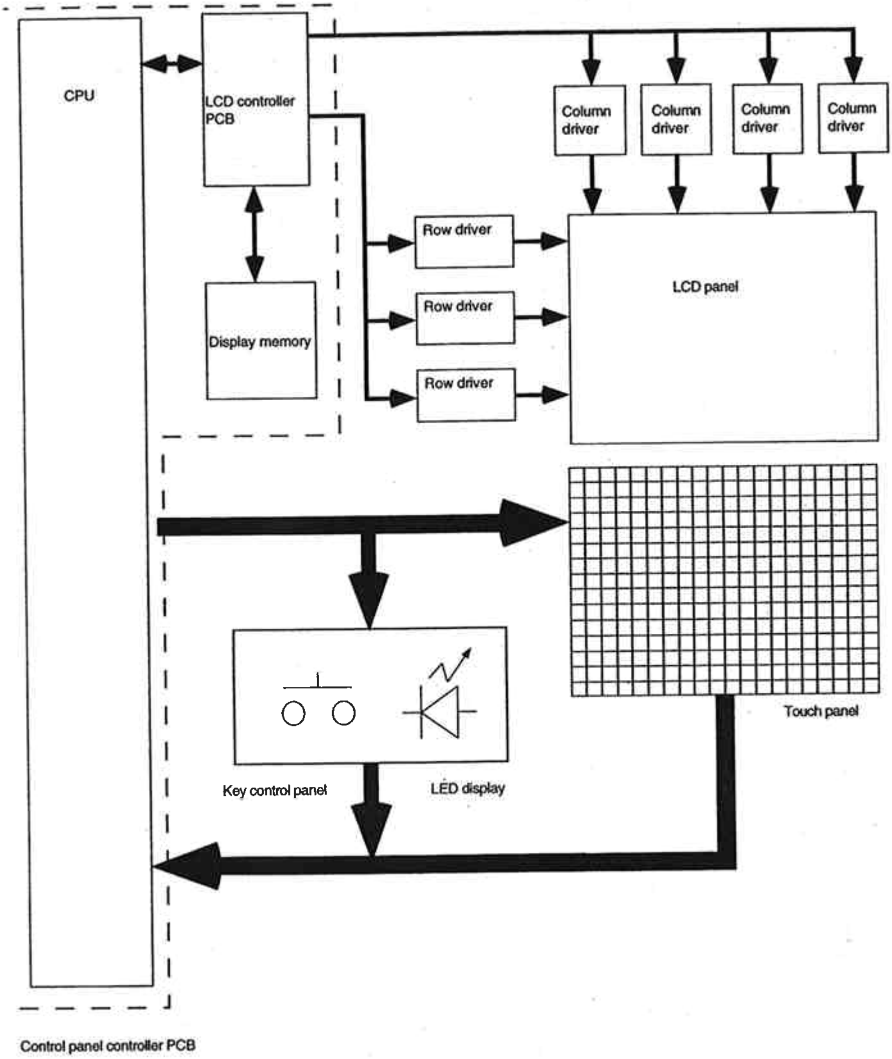

CPU
LCD controller PCB
Display memory
Column driver
Column driver
Column driver
Column driver
Row driver
Row driver
Row driver
LCD panel
Touch panel
Key control panel
LED display
Control panel controller PCB

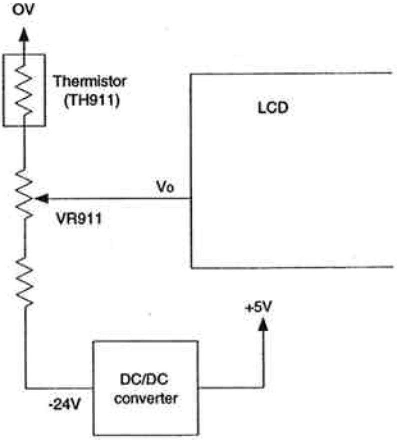
Figure 3-502

3. LCD Contrast Automatic Adjustment

The control panel controller PCB is equipped with a function that adjusts the changes in the contrast caused by changes in temperature.

The control panel controller PCB is equipped with a thermistor (TH911) to monitor the temperature inside the control panel. The voltage supplied to the LCD is varied according to the changes in resistance of the temperature to ensure optimum contrast on the LCD.

The LCD contrast need not be adjusted, as it is adjusted at the factory.



Vo: Supply voltage to the LCD.

Figure 3-503

If the temperature around the control panel increases, the resistance of the thermistor decreases, thereby increasing the supply voltage (VO) to the LCD.

When the temperature near the control panel decreases, the resistance of the thermistor increases, thereby decreasing the supply voltage (VO) to the LCD.

4. Touch Switch Input

The keys of the touch switch panel and the control panel controller PCB are connected as shown in Figure 3-502. The touch switch panel consists of bonded glass and film sheets between which pacers are provided; it has keys in a pattern of 15 columns and 20 rows.

When the film surface is pressed by a finger, the contact between the film and the glass causes electrical continuity.

This way, a pair of electrodes are connected, allowing detection of X/Y coordinates as in the case of a common key matrix. In other words, the control panel controller PCB detects which key has been pressed based on the correspondence between the key scan signal from the control panel controller PCB and the input signal to the control panel controller circuit.

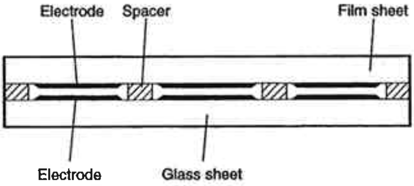


Figure 3-504

VI. FANS

The NP6050 is equipped with six fans, serving to exhaust ozone, collect stray toner, and cool the parts. Table 3-601 shows the function of each fan together with its filter and fan orientation.

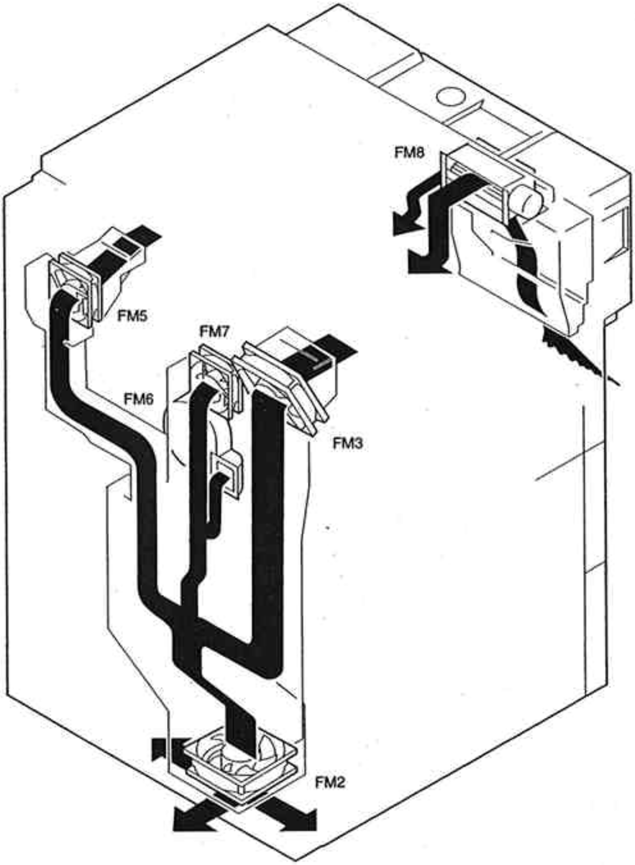


Figure 3-601

Notation	Name	Orientation	Filter	Function
FM2	Air exhaust fan	Blowing	Ozone	Exhausts air from each fan to the outside.
FM3	Fixing heat exhaust fan	Drawing	Drawing	Prevents overheating inside the machine by the fixing heater. Exhausts silicone oil vapors.
FM5	Developing fan	Drawing	Drawing	Draws in stray toner from around the developing assembly.
FM6	Feeding fan	Drawing	Drawing	Draws copy paper to the feeding belt.
FM7	Cleaner fan	Drawing	Drawing	Prevents internal overheating.
FM8	Scanner cooling fan	Blowing	Air, dust-proofing	Cools the scanner and the primary charging assembly.

Table 3-601

The following fans are controlled to either full-speed mode or half-speed mode. The circuits are switched as in Figure 3-602 between +24V and +12 V by the CPU on the DC controller PCB.

- Air exhaust fan (FM2)
- Fixing heat exhaust fan (FM3)
- Feeding fan (FM6)
- Cleaner fan (FM6)
- Scanner cooling fan (FM8)

When the CPU causes the FMFLL signal to go '1', +24 V is supplied to initiate full-speed rotation; when the FMHLF signal goes '1', +12 V is supplied to initiate half-speed rotation.

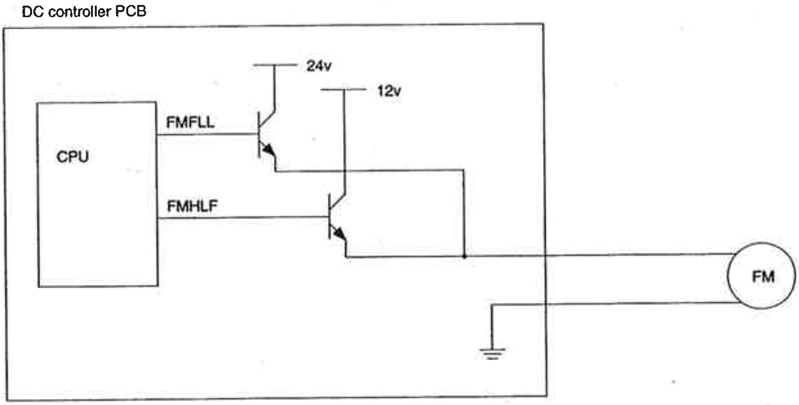


Figure 3-602

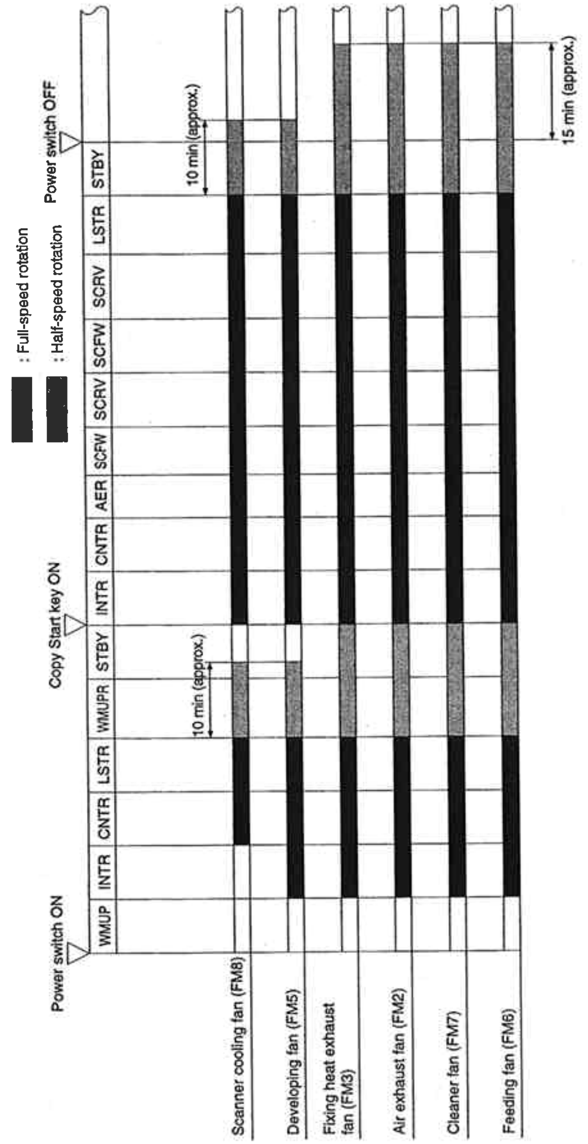

■ : Full-speed rotation
▨ : Half-speed rotation
Power switch ON
Copy Start key ON
Power switch OFF
WMUP
INTR
CNTR
LSTR
WMUPR
STBY
INTR
CNTR
AER
SCFW
SCRV
SCFW
SCRV
LSTR
STBY
10 min (approx.)
10 min (approx.)
15 min (approx.)
Scanner cooling fan (FM8)
Developing fan (FM5)
Fixing heat exhaust fan (FM3)
Air exhaust fan (FM2)
Cleaner fan (FM7)
Feeding fan (FM6)

Figure 3-603 Fan Operation Sequence

VII. POWER SUPPLY

A. Outline of Power Supply

Figure 3-701 is a block diagram showing the distribution of power inside the NP6050.

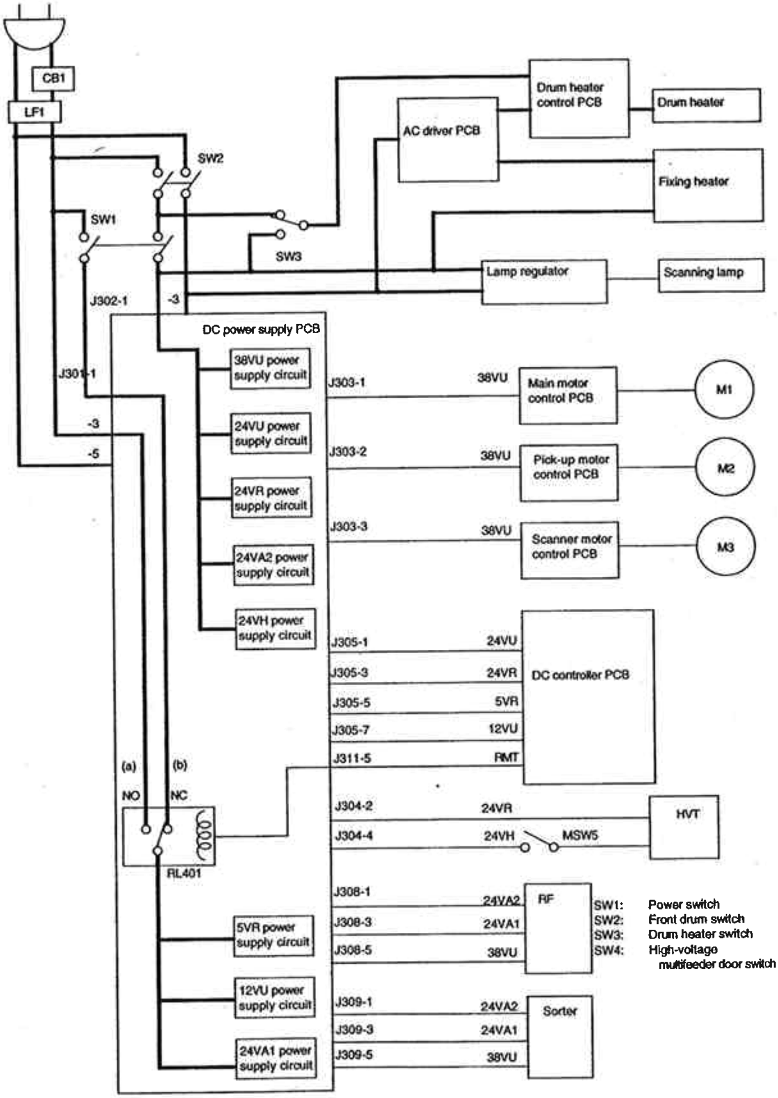

CB1
LF1
SW2
SW1
SW3
Drum heater control PCB
Drum heater
AC driver PCB
Fixing heater
Lamp regulator
Scanning lamp
J302-1
-3
DC power supply PCB
38VU power supply circuit
24VU power supply circuit
24VR power supply circuit
24VA2 power supply circuit
24VH power supply circuit
J301-1
-3
-5
J303-1
38VU
Main motor control PCB
M1
J303-2
38VU
Pick-up motor control PCB
M2
J303-3
38VU
Scanner motor control PCB
M3
J305-1
24VU
J305-3
24VR
DC controller PCB
J305-5
5VR
J305-7
12VU
J311-5
RMT
(a)
(b)
NO
NC
RL401
J304-2
24VR
HVT
J304-4
24VH
MSW5
J308-1
24VA2
RF
J308-3
24VA1
J308-5
38VU
5VR power supply circuit
12VU power supply circuit
24VA1 power supply circuit
J309-1
24VA2
Sorter
J309-3
24VA1
J309-5
38VU
SW1: Power switch
SW2: Front drum switch
SW3: Drum heater switch
SW4: High-voltage multifeeder door switch

Figure 3-701

B. Power Supply Circuit

The NP6050's DC power supply provides eight DC outputs: 38 VU, 24 VU, 24 VR, 24 VA2, 24 VH, 24 VA1, 12 VU, and 5 VR.

Its AC power supply consists of the following: a. AC direct input line without a switch; b. input line through a power switch (SW1); and c. input line through both power switch (SW1) and door switch (SW2).

When the power switch (SW1) is turned ON, each power supply circuit is supplied with AC power for DC outputs; the input lines are switched for the 5 VR, 12VU, and 24VA1 power supply circuits by the remote signal (RMT) from the DC controller PCB.

When the power switch (SW1) is turned ON, power is supplied to each power supply circuit through the line that goes through the power switch (SW1; b) to activate the microprocessor on the DC controller PCB. Then, the microprocessor on the DC controller PCB causes the remote signal (RMT) to go '1' to turn ON the relay (RL401), switching the AC input line to the AC direct input line (a).

When the power is turned OFF, the 38VU, 24VU, 24VR, 12VA2, and 24VH circuits turn OFF; however, other DC power supply circuits remain ON to continue to provide the DC controller PCB with DC power, thereby rotating the fans for a specific period of time (about 15 min).

Thereafter, the DC controller PCB causes the remote signal (RMT) to go '0' to cut off the AC circuit, thereby automatically cutting off the AC input to the DC power supply PCB.

Caution:

You must disconnect the power plug before working on the DC controller PCB (for replacement, for example).

Reference:

The tolerances for DC voltage are as follows:

- +38VU +10%, -7%
- +24VU +10%, -7%
- +24VU ±2%
- +24VA2 +10%, -7%
- +24VH +10%, -7%
- +5VR ±4%
- +12VU +10%, -7%
- +24VU +10%, -20%

The above, however, assumes that the AC input accuracy is ±10%.

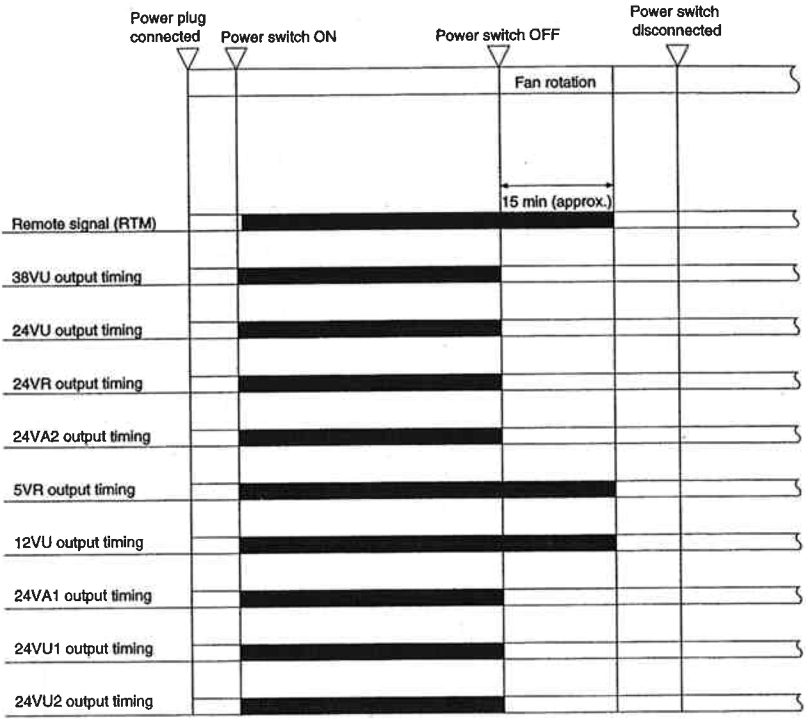

Power plug connected
Power switch ON
Power switch OFF
Power switch disconnected
Fan rotation
15 min (approx.)
Remote signal (RTM)
38VU output timing
24VU output timing
24VR output timing
24VA2 output timing
5VR output timing
12VU output timing
24VA1 output timing
24VU1 output timing
24VU2 output timing

Figure 3-702

As means of protection for the power supply PCB, the AC power supply input side is equipped with a fuse and each DC circuit is equipped with a built-in overcurrent protection circuit.

If an overcurrent flows because of a short circuit in the power supply line, the protection circuit will turn on to turn OFF the output of the power supply unit. If such happens, disconnect the power plug, and remove the cause of activation; then, turn ON the power supply. The protection circuit may be reset by turning ON the AC power supply once again after keeping the AC power supply of the power supply unit OFF for about 30 sec.

Caution:

If an overcurrent flows, the protection circuit turns on before the fuse of the AC input blows; however, the AC input fuse may blow if the AC power supply is turned ON/OFF while the output of the power supply unit has a short circuit.

C. Power Supply for Date/Time Display

The DC controller PCB is equipped with a lithium battery as a backup to be used in the event that the power plug is disconnected by accident.

The lithium battery is good for about five years with the power plug disconnected. When its life is exhausted, the date/time notation remains unchanged; the notation mechanism starts to operate once again when the power plug is connected.

You cannot use the lithium battery once it reaches its life, i.e., you cannot recharge it. (Replace it with a service part battery.)

The service part battery will not discharge unless it is connected to a circuit, and it is good as long as five years after it is first used.

Keep in mind that the backup data will be lost when the battery reaches its life or when it is taken out for replacement; be sure to re-enter data as necessary.

VIII. SERVICE MODE

A. Outline

The machine's service mode is divided into the following six:

Item	Display	Description
1	DISPLAY	Control/display mode
2	I/O DISPLAY	I/O display mode
3	ADJUST	Adjustment mode
4	FUNCTION	Function mode
5	OPTION	Optional settings mode
6	COUNTER	Counter mode

Table 3-801

Each mode has items which may be checked on the message display.

Reference:

When a specific mode is selected, the appropriate page number will be indicated in the upper right corner of the message display.

B. Using Service Mode

1) Open the front door, and insert a door switch actuator. If you want to make checks (e.g., I/O display mode) while making copies, set the appropriate copying mode.
2) Press the service mode key with a hex key.
   - '$' will be indicated in the upper right corner of the message display when service mode starts.
3) Enter the number of the mode (Table 3-801) using the * key and the keypad.
   Ex.
   $\boxed{*}\rightarrow\boxed{3}\rightarrow\boxed{*}$
4) Press the ⏪/⏩ key to select the appropriate screen.
5) Make a check or adjustments.
   To accept the input data, press the user mode key (*).
6) End service mode.
   - Press the Reset key (//) once to end the current mode.
   - Press the Reset key twice to end service mode.
   - Or, turn OFF the power switch or disconnect the power plug to end service mode. (Opening the front door or the pick-up assembly door will not end service mode.)

C. Using Adjustment Mode and Option Settings Mode

In adjustment mode or option settings mode, settings made on the control panel are stored in RAM on the DC controller PCB, thereby simulating operations executed by conventional VRs and SWs.

Table 3-802 shows the label attached behind the front door.

At the factory, each machine is adjusted, and the adjustment values are recorded on the label.

If you have replaced the DC controller PCB or initialized the RAM, you must enter the values recorded on the label.

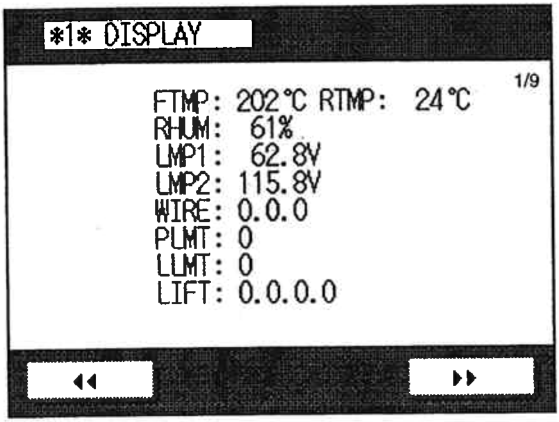
In addition, be sure to record any values you entered in the field on the label.

	TYP				TYP		
LIGHT_5				MF_A6R			
LIGHT_5P				MF_A4R			
AE_SLOP				MF_A4			
GLEAM_5				BOOK_ERA			
BRAKE_SC				ATM			
REGIST				DOC_ST			
LE_BLANK				P_INT_RVL			
F_BLANK				RFAE_F5L			
R_BLANK				REAE_F9L			
TE_BLANK				RFAE_F5R			
PRIMARY				RFAE_F9R			
BIAS				LA_LCKPS			
PRETRANS				LA_SPEED			
TRN_1				RF_LENSY			
TRN_DUP				11x17PSZ			
TRN_OVL				LGL_PSZ			
SEP_1				LTR_PSZ			
SEP_DUP				LTRR_PSZ			
SEP_OVL				STMT_PSZ			
C1_STMTR				A3_PSZ			
C1_A4R				A4_PSZ			
C2_STMTR				A4R_PSZ			
C2_A4R				A5_PSZ			
C3_STMTR				B4_PSZ			
C3_A4R				B5_PSZ			
C4_STMTR				B5R_PSZ			
C4_A4R							

Table 3-802

D. Control Display Mode (*1*)

Press the <</>> key to select the screen.



```
*1* DISPLAY
                                      1/9
FTMP: 202℃ RTMP:  24℃
RHUM:  61%
LMP1:  62.8V
LMP2: 115.8V
WIRE: 0.0.0
PLMT: 0
LLMT: 0
LIFT: 0.0.0.0
```

Screen 1-1

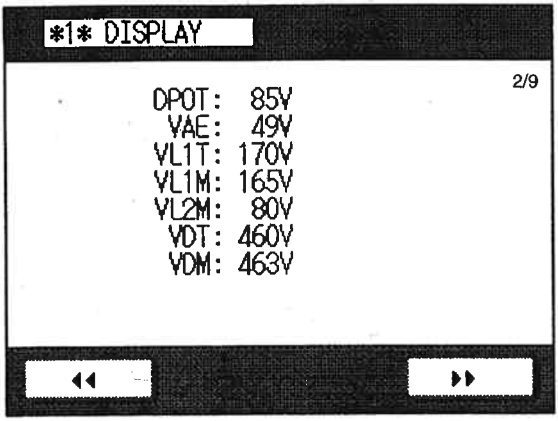
Item	Description	Remarks
FTMP	Indicates the surface temperature of the fixing roller. (output of the thermistor TH1)	Unit: °C
RTMP	Indicates the machine internal temperature. (output of the thermal sensor on the DC controller PCB)	
RHUM	Indicates the machine internal humidity. (output of the humidity sensor on the DC controller PCB)	
LMP1	Indicates the ON voltage of the scanning lamp (100/115V model)	Unit: V
LMP2	Indicates the ON voltage of the scanning lamp. (230V model)	Unit: V
WIRE	Indicates a value other than '0' if the primary, pre-transfer, or transfer/separation charging wire cleaner stops at a point not its home position. Executing wiring cleaning for the appropriate wire in user mode can return the wire cleaner to its home position.	
PLMT	Indicates '1' when the current value reaches the upper limit or the lower limit during current control on the primary charging assembly.	1: Error 0: Normal
LLMT	Indicates '1' when the ON voltage of the scanning lamp reaches '1' and '2' if it reaches the lower limit.	0: Normal 1: Error 2: Error

Item	Decription	Remarks
LIFT	Indicates '1' if the lifter position sensor does not turn ON within 8 sec after the lifter up command is issued for the paper deck/cassette lifter. Order of flags Paper deck type Right deck, left deck, cassette 3, cassette 4	Resetting is by turning OFF and ON the power switch.

- LMP1 and LMP2 indicate the ON control voltage even when the scanning lamp is OFF.

Note:

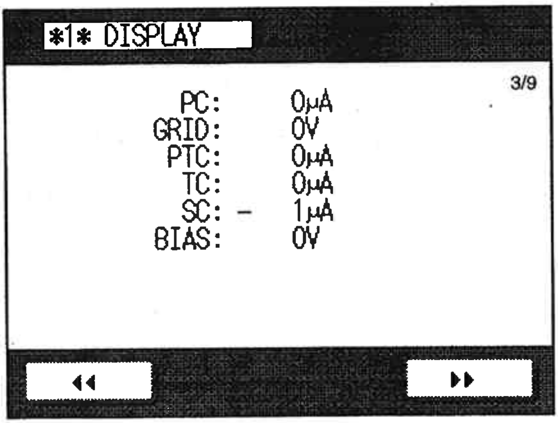
If '0' is indicated under 'WIRE', be sure to execute 'wire cleaning' in user mode (✱).
If the wire cleaner motor and the wire cleaner unit are normal, executing wire cleaning will activate the cleaner unit, causing it to stop at home position and clearing the indication to '0'.
(Unless you execute wire cleaning, wire cleaning will remain prohibited and will not be reset by turning OFF/ON the power.)



DPOT: 85V
VAE: 49V
VL1T: 170V
VL1M: 165V
VL2M: 80V
VDT: 460V
VDM: 463V

Screen 1-2

Item	Description	Remarks
DPOT	Indicates the surface pótential of the drum.	Unit: V
VAE	Indicates the average surface potential during AE measurement.	Unit: V
VL1T	Indicates the target value of VL1 (light are potential).	Unit: V
VL1M	Indicates the measured value of VL1 (light area potential).	Unit: V
VL2M	Indicates the measured value of VL2 (light area potential for developing bias).	Unit: V
VDT	Indicates the target value of VD (dark area potential).	Unit: V
VDM	Indicates the measured value of VD (dark area potential).	Unit: V

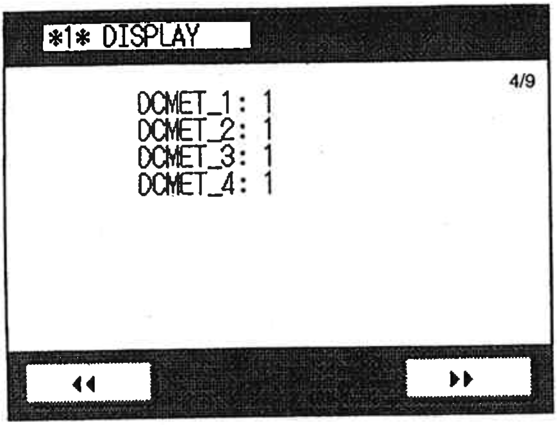


```
    PC:     0μA
  GRID:     0V
   PTC:     0μA
    TC:     0μA
    SC: -   1μA
  BIAS:     0V
```

Screen 1-3

Item	Description	Remarks
PC	Indicates the current value of the primary charging assembly.	
GRID	Indicates the current value of the grid of the primary charging assembly.	
PTC	Indicates the current value of the pre-transfer charging assembly.	
TC	Indicates the current value of the transfer charging assembly.	
SC	Indicates the current value of the separation charging assembly.	
BIAS	Indicates the DC value of the developing bias.	

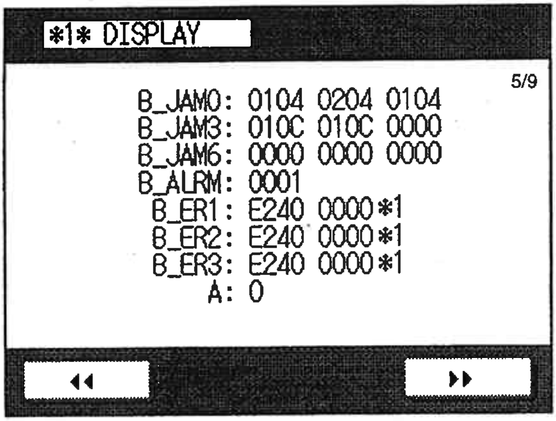
- The indication will change to '0' when the HVT unit turns OFF.



DCMET_1: 1
DCMET_2: 1
DCMET_3: 1
DCMET_4: 1

Screen 1-4

Item	Description	Remarks
DCMET-1	Indicates the output of the original size sensor 1.	
DCMET-2	Indicates the output of the original size sensor 2.	
DCMET-3	Indicates the output of the original size sensor 3.	
DCMET-4	Indicates the output of the original size sensor 4.	



```
*1* DISPLAY
                                        5/9
B_JAM0: 0104 0204 0104
B_JAM3: 010C 010C 0000
B_JAM6: 0000 0000 0000
B_ALRM: 0001
 B_ER1: E240 0000*1
 B_ER2: E240 0000*1
 B_ER3: E240 0000*1
     A: 0
```

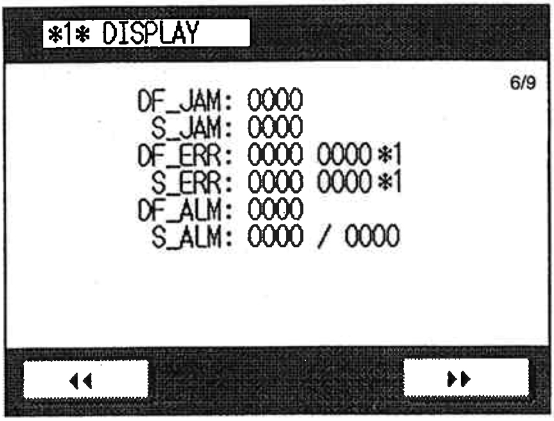
Screen 1-5

Item	Description	Remarks
B-JAM0	Indicates the location of most recent jam and the second most recent jam inside the copier.	See Table 3-803. (*3)
B-JAM3	Indicates the location of the third, fourth, and fifth most recent jams inside the copier.	See Table 3-803.
B-JAM6	Indicates the location of the sixth, seventh, and eighth jams in the copier.	See Table 3-803.
B-ALRM *1	Note used.	
B-ER1 *2	Indicates the most recent self diagnosis code for the inside of the copier and the sorter (not RDF).	
B-ER2 *2	Indicates the second most recent diagnosis code of the inside of the copier and the sorter (not RDF).	
B-ER3 *2	Indicates the third most recent diagnosis code of the inside of the copier and the sorter (not RDF).	
A	Indicates the type of E002 (error occurring when the temperature of the fixing roller does not reach a specific value within a specific period of time).	1: 70 °C~100 °C 2: 100°C~150 °C

*1: No data exists representing a copier alarm condition.

*2: The indication of the rightmost four bits of 'B-ER 1 through 3' will remain '0000', and no E code will be indicated.

*3: Jam codes related to the RDF indicated under 'B-JAM' are '0700' only; for details, see the next screen 'DF-JAM'.



```
*1* DISPLAY
                                        6/9
DF_JAM: 0000
 S_JAM: 0000
DF_ERR: 0000 0000 *1
 S_ERR: 0000 0000 *1
DF_ALM: 0000
 S_ALM: 0000 / 0000
```

Screen 1-6

Item	Description	Remarks
DF-JAM	Indicates the location of an RDF jam.	See Tables 3-807, 808, and 809.
S-JAM	Indicates the location of a jam in the sorter.	See Table 3-804.
DF-ERR *1	Indicates the nature of the results of self diagnosis in the RDF. (*2)	
S-ERR *1	Indicates the nature of the results of self diagnosis in the sorter. (*3)	
DF-ALM	Indicates the nature of an alarm for the RDF.	
S-ALM	Indicates the nature of an alarm in the sorter.	See Tables 3-805 and 806.

*1: The rightmost four bits of 'DF-ERR' and 'S-ERR' will remain '0000', i.e., they will not change.

*2: For instance, if 'E480' is indicated,

DF-ERR: 8000 0000

'4' of 'E480' represents the RDF and is omitted for DF-ERR notation.

*3: For instance, if 'E530' is detected,

S-ERR: 3000 0000

'5' of 'E530' represents the sorter and is omitted for S-ERR notation.

High-order 2 digits

Display code	Jam location
01	Delay jam
02	Stationary jam
03	Power-on jam
04 *1	Double feeding jam
05	Timing jam
06	Sorter-related jam
07 *2	RDF-related jam

*1: Power-on jam only.
*2: Power-on jam and jam during initial rotation.

Display code	Sensor name	Sensor No.
01	Pick-up vertical path 0	PS24
02	Pick-up vertical path 1	PS33
03	Pick-up vertical path 2	PS36
04	Pick-up vertical path 3	PS27
05	Pick-up vertical path 4	PS30
06	Holding tray pick-up	PS17
07	Holding tray registration	PS14
08	Holding tray feeding assembly 1	PS8
09	Holding tray feeding assembly 2	PS9
10	Fixing claw jam	PS52 (*2)
0A	Registration	PS23
0B	Holding tray inlet	PS15
0C	Fixing assembly outlet	PS47
0D	External delivery	PS10
0E	Left deck pick-up assembly	PS49
0F	Internal delivery assembly	PS12 (*1)

Table 3-803

Sorter Jam Code

Display code	Description
03	Feeding delay jam
04	Feeding stationary jam
07	Power-on jam
08	Door open jam (while feeding copy paper)
09	Door open jam (during stapling)
OA	Bin external sensor jam

To reset, open the front door, remove the jam, and close the front door.
*1: A double feeding jam location (low-order 2 digits) indication is '00' only; 01, 02 will not be displayed.
*2: For a jam indication in RDF stream reading mode, use 'RDF-JAM' for left pick-up.

Table 3-804

Sorter Alarm Code

Tray Alarm Code

Display code	Alarm	Resetting
03	Overstacking	Remove all copy paper from the bin.

Table 3-805

Stapler Alarm Code

Display code	Alarm	Resetting
02	Staple jam	Open the front door, remove all staple jams, and close the front door.
03	Stapler safety mechanism ON	Open the front door, remove all jams, and close the front door.
05	Stapling capacity	Remove all copy paper from the bin.
07	Different paper sizes	Remove all copy paper from the bin.
0A	No staple	Set a new staple cartridge.

Table 3-806

RDF Alarm Code

Display code	Alarm	RDF operation	Resetting
01	Re-circulating bar idle rotation	Stops	Turn ON/OFF the original sensor (S1).
03	Pick-up separation failure	Stops	Turn ON/OFFF the original sensor (S1).
11	Different number of originals after jam recovery	Stops	Turn ON/OFF the original sensor (S1).
15	Mixed original sizes in image composition	Stops	Turn ON/OFF the original sensor (S1) and open/close the RDF.
21	Operation mode error	Stops	Turn ON/OFF the original sensor (S1).

Table 3-807

RDF Jam Codes

	Type of jam	Sensor	Description	Code
Right/left pick-up	Original left behind	S5	S5 detects an original after the belt motor (M3) has rotated counterclockwise.	19
	Original pulled off	S1, S2	S2 does not detect an original and S1 does not detect an original for a specific period of time after the pick-up motor (M1) has turned ON.	21
	Original pulled off	S15, S27	S15 does not detect an original and S27 does not detect an original for a specific period of time after the pick-up motor (M1) and the pick-up clutch (CL1) have turned ON.	66
	Lever idle swinging	S29, S30	The re-circulating lever swung without coming into contact with an original.	03
Left pick-up	Left pick-up trailing edge skew	S3, S4	After left pick-up there is a difference of 8 mm or more (equivalent) between when an original has left S3 and when it has left S4.	11
	Left pick-up error	S3	After edge feeding, S3 does not detect an original.	13
	Left pick-up delay	S3	S3 does not detect an original in spite of feeding 500 mm (equivalent) after the pick-up motor (M1) has turned ON.	22
	Registration delay	S2, S3	S3 does not detect an original in spite of feeding 60 mm (equivalent) after S2 has detected an original.	23
	Left pick-up skew	S3, S4	After left pick-up, there is a difference of 10 mm (equivalent) between when S3 detects an original and when S4 detects an original.	24
	Left pick-up stationary	S3	S3 detects an original for 660 mm (equivalent) or more.	31
Right pick-up	Right pick-up delay	S15	S15 does not detect an original in spite of feeding 500 mm (equivalent) after the pick-up motor (M1) has turned ON.	61
	Right registration delay	S16, S17	S17 does not detect an original in spite of feeding 160 mm (equivalent) after S16 has detected an original.	62
	Right registration delay	S17, S20	S20 does not detect an original in spite of feeding 130 mm (equivalent) after S17 has detected an original.	63
	Right pick-up stationary	S17	S17 detects an original for 266 mm (equivalent) or more.	64
	Right pick-up leading edge skew	S15, S16	After right pick-up, there is a difference of 15 mm or more between when S15 detects an original and when S16 detects an original.	65
	Right pick-up trailing edge skew	S15, S16	After right pick-up, there is a difference of 15 mm or more between when an original leaves S15 and when it leaves S16.	71

Table 3-808

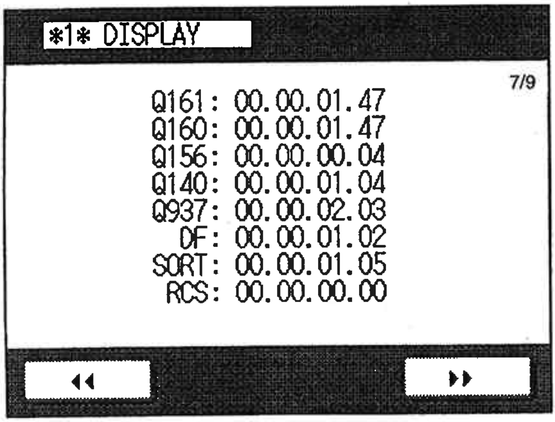
	Type of jam	Sensor	Description	Code
Manual feed	Manual feed stationery	S32	An original does not leave S32 in spite of feeding 100 mm (equivalent) or more after the feeding motor (M8) has turned ON.	91
	Manual feed delay	S20	S20 does not detect an original in spite of feeding 1000 mm (equivalent) or more after the feeding motor (M8) has turned ON.	92
	Manual feed pick-up stationary	S20	S20 detects an original for 750 mm (equivalent) or more.	A1
	Manual feed delivery stationary	S20	S20 does not detect an original in spite of feeding 532 mm (equivalent) or more after the belt motor (M3) has turned ON.	A2
	Manual feed delivery stationary	S19, S20	The original does not leave S19 in spite of feeding 'feeding direction length x1.5 mm' (equivalent) or more after S20 has detected an original.	A3
	Manual feed original left behind	S5	S5 detects an original after the belt motor (M3) has rotated counterclockwise.	A4
Reversal	Reversal leading edge skew	S3, S4	After starting reversal, there is a difference of 10 mm or more between when S3 detects an original and when S4 detects an original.	15
	Reversal original left behind	S3	After start of reversal, an original is over S3.	51
	Reversal pick-up delay	S3, S5	During reversal, S3 does not detect an original in spite of feeding 163 mm (equivalent) from S5.	52
	Reversal pick-up leading edge skew	S3, S4	After reversal, there is a difference of 10 mm (equivalent) or more between when S3 detects an original and when S4 detects an original.	53
	Reversal pick-up stationary	S3	During reversal, an original does not leave S3 in spite of feeding 'feeding direction length x 1.5 mm' (equivalent) or more.	54
	Reversal delay	S5	S5 does not detect an original in spite of feeding 115 mm (equivalent) after the belt motor (M3) has turned ON.	14
	Reversal delay	S5	S5 detects an original for 'feeding direction length x 1.5 mm' (equivalent) or more.	41
	Stream reading failure	S20	1. In stream reading mode, the speed of the belt motor (M3) is lower than specified when the leading edge of an original has reached the image exposure start position. 2. In stream reading mode, a command for a speed outside the control range of the belt motor (M3) is issued.	F4H
		S17	3. In stream reading mode, the edge feeding from the pre-registration sensor is outside the specified range.	

Note: If E402, E403, E406, and E408 are detected in sequence, the condition will not be identified as an error, since each is counted as a non-error single condition.

Table 3-809

	Type of jam	Sensor	Description	Code
	Error detection		Error code E402, E403, E406, or E408 is detected. **Note:** Any of these error conditions will be treated as an RDF jam up to the second detection; they will be treated as an error starting with the third detection. This is to prevent an error alert in response to improper originals or improperly placed originals. The count of detection returns to '0' when the power is turned OFF and then ON.	FEH
Delivery	Delivery delay	S5, S6	S6 does not detect an original in spite of feeding 218 mm (equivalent) after S5 has detected an original.	25
	Delivery stationary	S6	S6 detects an original for 'feeding direction length x 1.5 mm' (equivalent) or more.	26
Others	RDF open	S31	The copier assumes that the RDF has been opened during operation.	E1
	Cover open	S13,S14, S23, S24	The copier assumes that the right or left cover has been opened during operation.	E2
	Pick-up signal error		The copier issues a pick-up command even when the RDFF is not ready for pick-up.	E3
	Initial original left behind		An original is detected in the paper path when operation starts.	E4
	Size error		A large-size original is detected in image composition mode.	E6
	Stream reading failure	S20	1. In stream reading mode, the speed of the belt motor (M3) is lower than specified when the leading edge of an original has reached the image exposure start position. 2. In steam reading mode, a command for a speed outside the control range of the belt motor (M3) is issued.	F4H
		S17	In stream reading mode, the edge feeding from the pre-registration sensoris outside the specified range.	
	Error detection	–	Error code E402, E403, E406, or E408 is detected. **Note:** Any of these error conditions will be treated as an RDF jam up to the second detection; they will be treated as an error starting with the third detection. This is to prevent an error alert in response to improper originals or improperly placed originals. The count of detection returns to '0' when the power is turned OFF and then ON.	FEH

Table 3-810

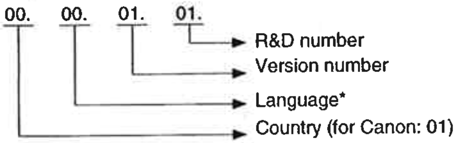


```
*1* DISPLAY
                                7/9
Q161: 00.00.01.47
Q160: 00.00.01.47
Q156: 00.00.00.04
Q140: 00.00.01.04
Q937: 00.00.02.03
  DF: 00.00.01.02
SORT: 00.00.01.05
 RCS: 00.00.00.00
```

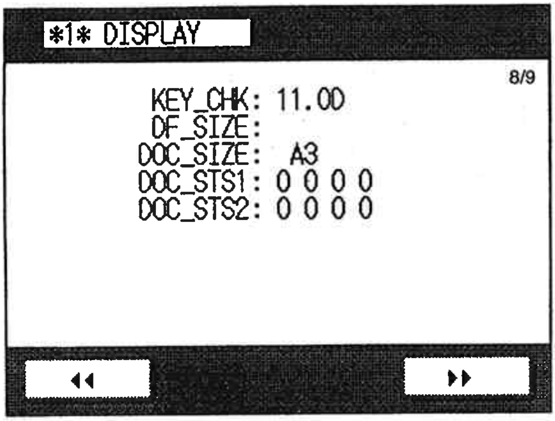
Screen 1-7

Item	Description	Remarks
Q161	Indicates the version of the ROM (Q161) on the DC controller PCB.	See "Guide to Version."
Q160	Indicates the version of the ROM (Q160) on the DC controller PCB.	See "Guide to Version."
Q156	Indicates the version of the ROM (Q156) on the DC controller PCB.	See "Guide to Version."
Q140	Indicates the version of the ROM (Q140) on the DC controller PCB.	See "Guide to Version."
Q937	Indicates the version of the ROM (Q937) on the control panel PCB.	See "Guide to Version."
DF	Indicates the version of the ROM (IC2) on the RDF controller PCB.	See "Guide to Version."
SORT	Indicates the version of the ROM (Q937) on the sorter controller PCB.	See "Guide to Version."

Guide to Version



*Language
10: Japanese
20: English
(20: North America; 21: UK)
30: French
40: German
50: Danish
60: Dutch
70: Finnish
80: Italian
90: Norwegian
A0: Portuguese
B0: Spanish
C0: Swedish



1 DISPLAY

8/9

KEY_CHK: 11.0D
DF_SIZE:
DOC_SIZE: A3
DOC_STS1: 0 0 0 0
DOC_STS2: 0 0 0 0

Screen 1-8

Item	Description	Remark
KEY-CHK	Indicates the code of the key pressed on the control panel. (*1)	See Tale 7-11.
DF-SIZE	Indicates the size of the original detected by the RDF.	
DOC-SIZE	Indicates the size of the original detected by the copier's original size sensor.	
DOC-STS1	Indicates the output (0/1) of the copier's original size sensor.	
DOC-STS2	Indicates the output (0/1) of the copier's original size sensor.	

*1 Touch panel.

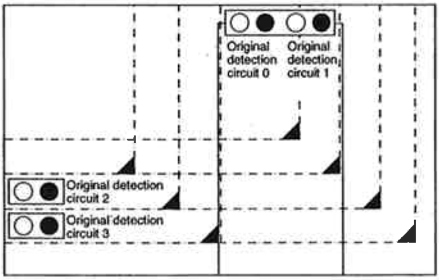
XX. XX
→ Column number of the touch panel (00 through 19, in hexadecimal)
→ Row number of the touch panel (00 through 15, in hexadecimal)

Display	Key	Display	Key	Display	Key	Display	Key
00. 0F	Reset	05. 0F	7	0A. 0F	0	0F. 0F	Pre-Heat
01. 0F	Stop	06. 0F	Clear	0B. 0F	3	10. 0F	Interrupt
02. 0F	Start	07. 0F	2	0C. 0F	6	11. 0F	Use mode
03. 0F	1	08. 0F	5	0D. 0F	9	12. 0F	Guide
04. 0F	4	09. 0F	8	0E. 0F	ID		

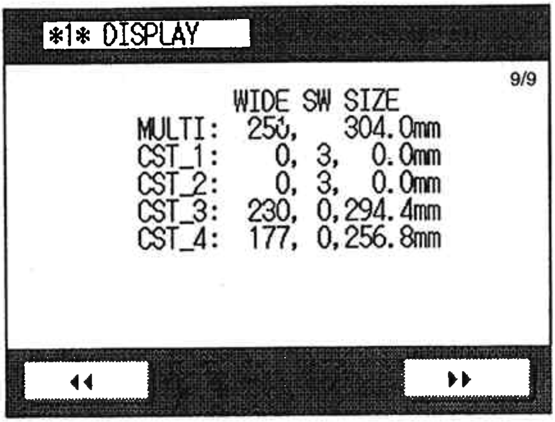
Table 3-811

Corresponding original size sensor number.

DOC,STSI: X X X X
↓ ↓ ↓ ↓
1 0 3 2


Original detection circuit 0
Original detection circuit 1
Original detection circuit 2
Original detection circuit 3

Note:
The Inch-configuration type does not have original detection circuit 3.



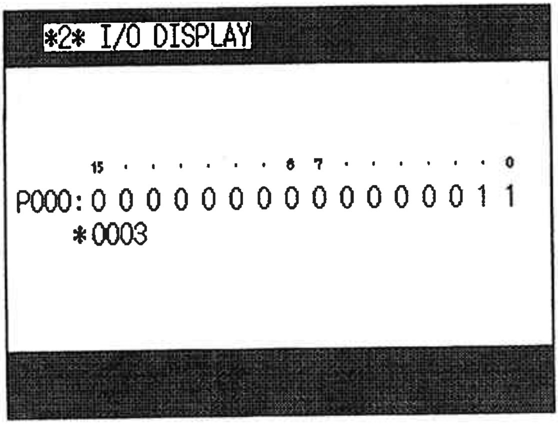
```
*1* DISPLAY
                                    9/9
          WIDE SW SIZE
MULTI:    250,    304.0mm
CST_1:      0, 3,   0.0mm
CST_2:      0, 3,   0.0mm
CST_3:    230, 0,294.4mm
CST_4:    177, 0,256.8mm
```

Screen 1-9

Item	Description	Remarks
MULTI	Indicates the outputs of the copy paper width sensor and the paper size sensor set on the multifeeder. WIDE : output of paper width sensor (analog) SW : output of paper length sensor (0/1) SIZE : paper width (mm)	
CST-1	Indicates the outputs of the copy paper width and the paper size sensor set in the right deck. WIDE : output of paper sensor (analog) SW : output of paper length sensor (0/1) SIZE : paper width (mm)	
CST-2	Indicates the outputs of the copy paper width and the paper size sensor set in the left deck. WIDE : output of paper width sensor (analog) SW : output of paper length sensor (0/1) SIZE : paper width (mm)	
CST-3	Indicates the output of the copy paper width and the paper size sensor set in the cassette 3. WIDE : output of paper width sensor (analog) SW : output of paper length sensor (0/1) SIZE : paper width (mm)	
CST-4	Indicates the outputs of the copy paper width sensor and the paper size sensor set in cassette 4. WIDE : output of paper width sensor (analog) SW : output of paper length sensor (0/1) SIZE : paper width (mm)	

E. I/O Display Mode (*2*)

Press numeric keys to select the screen.
The screen will indicate the states of the input port and the output port.



```
*2* I/O DISPLAY

      15 . . . . . . 8 7 . . . . . . 0
P000: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 1
     *0003
```

Screen 2-1

Bit data is converted to hexadecimal data for checks on analog data (e.g., address P02 photosensitive drum potential signal).

Address	Description	Name	Signal	Jack	Remarks
PC000-00	Pick-up motor drive signal	M02	M2ON	J114B-8	0: rotate
PC000-01	Drum motor drive signal	M01	M1ON	J111-B4	0: rotate
PC000-02	Developing fan drive signal	FM05	FM5D	J115-A1	1: rotate
PC000-03	Developing clutch drive signal	CL08	DEVCD	J112A-2	1: ON
PC000-04	Holding tray feeding 1 clutch drive signal	CL01	HTF1CD	J122B-2	1: ON
PC000-05	Scanner locking solenoid drive signal	SL01	SLCKSD	J114A-12	1: ON
PC000-06	Multifeeder pick-up roller clutch drive signal	CL07	MFPCD	J115B-2	1: ON
PC000-07	Multifeeder pick-up solenoid drive signal	SL10	SL10BD SL10FD	J115B-12	1: ON
PC000-08	Vertical path roller drive clutch drive signal	CL18	CL18D *	J115A-4	1: ON
PC000-09	Right deck pickup clutch drive signal	CL14	RDPUCD/ C1PUCD	J116A-2	1: ON
PC000-10	Left deck pick-up clutch drive signal	CL16	LDPUCD/ C2PUCD	J121A-2	1: ON
PC000-11	Cassette 1 lifter motor drive signal (4-cassette type only)	M16	C1MD	J119B-11	1: ON
PC000-11	Right deck lifter drive clutch drive signal (paper deck type only)	CL20	RDLCD	J118A-3	1: ON
PC000-12	Cassette 2 lifter motor drive signal (4-cassette type only)	M17	C2LMD	J119B-9	1: ON
PC000-12	Left deck lifter drive clutch drive signal (paper deck type only)	CL19	LDLCD	J118A-1	1: ON
PC000-13	Vertical path roller 1 drive clutch drive signal	CL15	CL15D *	J118B-10	1: ON
PC000-14	Vertical path roller 2 drive clutch drive signal	CL17	CL17D *	J121B-8	1: ON
PC000-15	Right deck pick-up roller releasing solenoid drive signal	SL04	RDPURR/ C1PURR	J122-A4	1: ON

Address	Description	Name	Signal	Jack	Remarks
PC001-00	Holding tray paper deflecting plate solenoid drive signal	SL08	HTPDD	J113B-9	1: ON
PC001-01	Holding tray weight solenoid drive signal	SL07	HTWSD	J113A-4	1: ON
PC001-02	Holding tray D-cut (pick-up) roller solenoid drive signal	SL06	HTDSD	J113A-5	1: ON
PC001-03	Fixing inlet guide drive signal	SL16	FXGDSD	J108-B15	1: ON
PC001-04	Holding tray swing solenoid drive signal	SL09	HTJSD	J113B-5	1: ON
PC001-05	Cassette 3 lifter motor drive signal	M14	C3LMD	J119A-9	1: rotate
PC001-06	Cassette 4 lifter motor drive signal	M15	C4LMD	J119A-11	1: rotate
PC001-07	Cassette 3 pick-up clutch drive signal	CL10	C3PUCD	J117A-2	1: ON
PC001-08	Cassette 4 pick-up clutch drive signal	CL12	C4PUCD	J130A-2	1: ON
PC001-09	Pick-up vertical path roller 3 drive clutch drive signal	CL11	CL11D	J117B-2	1: ON
PC001-10	Pick-up vertical path roller 4 drive clutch drive signal	CL13	CL13D	J130B-2	1: ON
PC001-11	Cassette 3 pick-up roller releasing solenoid drive signal	SL11	C3PURR	J122A-6	1: ON
PC001-12	Cassette 4 pick-up roller releasing solenoid drive signal	SL12	C4PURR	J122B-6	1: ON
PC001-13	Fixing assembly inlet guide drive signal	SL16	FXGUSD	J108-B14	1: ON
PC001-14	Not used				
PC001-15	Size detection drive			J110-B4/ B7/B10	

Address	Description	Name	Signal	Jack	Remarks
PC002-00	Pick-up vertical path 0 paper detection signal	PS24	PS24D	J116B-2	1: paper present
PC002-01	Stream reading home position detection signal	PS04	SCDP2	J111A-8	0: home position
PC002-02	Registration paper detection signal	PS23	RGPD	J108A-7	1: paper present
PC002-03	Holding tray feeding assembly 2 paper detection signal	PS09	PS9D	J113B-12	1: paper present
PC002-04	Holding tray feeding assembly 1 paper detection signal	PS08	PS8D	J119A-4	1 : paper present
PC002-05	Multifeeder paper detection signal	PS22	MFS	J115B-7	1 : paper present
PC002-06	Fixing sub heater ON detection signal	H2	SHOND	J120B-6	1 : ON
PC002-07	Fixing main heater ON detection signal	H1	MHOND	J120B-7	1 : ON
PC002-08	Waste toner level signal	MSW4	WTFL	J114B-1	1 : ON
PC002-09	Developing assembly toner level signal	TS2	DTEP	J106B-8	0 : toner absent
PC002-10	Hopper toner level signal	TS1	TEP	J105A-6	0 : toner absent
PC002-11	Original size 1 detection signal	DS1	DSZ1	J110B-5	0 : original present
PC002-12	Original size 2 detection signal	DS2	DSZ2	J110B-8	0 : original present
PC002-13	Original size 3A detection signal	DS3	DSZ3A	J110B-12	0 : original present
PC002-14	Original size 3 B detection signal	DS3	DSZ3B	J110B-11	0 : original present
PC002-15	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC003-00	Left deck/cassette 3 pick-up roller releasing solenoid drive signal	SL05	LDPURR/ C2PURR	J122A-2	1 : ON
PC003-01	CC-X count signal	CCX10	CCXCNTD	J123-6	1 : count
PC003-02	High-voltage output enable signal	HVT	HVTRMT	J114A-10	0 : high-voltage output ON
PC003-03	Control Card V drive signal	CCV	CCNTD	J106B-1	1 : count
PC003-04	Feeding fan/cleaner fan drive signal (half speed)	FM06／07	FM6D	J109-1/ J114B-3	1 : half speed
PC003-05	Feeding fan/cleaner fan drive signal (full speed)	FM06／07	FM6D	J109-1/ J114B-3	1 : full speed
PC003-06	Fixing assembly delivery/discharge drive signal (half speed)	FM02 FM03 FM07	FM2D FM3D FM7D	J118B-7 J104A-1 J114B-3	1 : half speed
PC003-07	Discharge/fixing heat exhaust/drive signal (full speed)	FM02 FM03 FM07	FM2D FM3D FM7D	J118B-7 J104A-1 J114B-3	1 : full speed
PC003-08	Potential sensor power-on signal	POT	POT-S-ON	J103B-8	1 : ON
PC003-09	Multi solenoid drive signal	SL15		J115B-10	1 : ON
PC003-10	Developing bias AC output signal		BIASAC	J114A-3	0 : ON
PC003-11	Roller electrode bias output signal		PSTBIAS	J114A-1	0 : ON
PC003-12	Post-separation AC output signal		PSTAC SPAC	J114A-7	0 : ON
PC003-13	Scanning lamp ON signal	LA1	LAON	J111B-8	0 : ON
PC003-14	Fixing main heater drive signal	H1	MHRD	J102B-5	0 : ON
PC003-15	Fixing sub heater drive signal	H2	SHRD	J102B-3	0 : ON

Address	Description	Name	Signal	Jack	Remarks
PC004-00	Scanner motor brake signal	M03	M03BK	J112B-6	1: brake ON
PC004-01	Scanner motor forward signal	M03	M03FW	J112B-8	0 : forward 1 : reverse
PC004-02	Scanner motor drive signal	M03	M03ON	J112B-7	0 : ON
PC004-03	Scanner motor (overcurrent control) current limit	M03	M03CL	J112B-5	1 : current limiter ON
PC004-04	Scanner motor mode 1 signal	M03	M03MD1	J112B-11	
PC004-05	Scanner motor mode 2 signal	M03	M03MD2	J112B-10	
PC004-06	Scanner motor mode 3 signal	M03	M03MD3	J112B-9	
PC004-07	Blank exposure power supply (0V) signal	BLANK	B0V	J103A-8	0 : blank ON
PC004-08	Control panel LCD back light signal	LCD	LCDLGHT	J105B-11	1 : ON
PC004-09	Control panel CPU reset signal	OPEPANE	OPRST	J105B-5	0 : reset
PC004-10	Internal signal (watch dog)				
PC004-11	Power switch OFF signal	SW01	PWOFF	J104A-8	1 : ON
PC004-12	FT prohibit signal	M3	PWOFF	J112B-2	1 : ON
PC004-13	Not used				
PC004-14	Internal signal (tray X shift star)				
PC004-15	Internal signal (tray Y shift start)				

Address	Description	Name	Signal	Jack	Remarks
PC005-00	Front door open detection signal	SW03	FDOD	J104A-3	1 : open
PC005-01	Fixing/feeding unit detection signal	FIXC	FFUCNT	J108A-9	0 : fixing/feeding unit connected
PC005-02	Fixing assembly outlet paper detection signal	PS47	IDPD	J108B-12	0 : paper present
PC005-03	Multifeeder door open detection signal	PS46	MFDC	J105A-9	1 : closed 0 : open
PC005-04	External delivery signal	PS10	EXDPD	J108B-7	1 : paper present
PC005-05	Fixing cleaning belt length detection signal	PS11	CBOP	J108A-13	1 : belt out
PC005-06	Holding tray inlet paper detection signal	PS15	PS15D	J113B-10	1 : paper present
PC005-07	Holding tray registration paper detection	PS14	PS14D	J113A-3	1 : paper present
PC005-08	Internal deicer signal	PS12	FXDEL	J108B-4	1 : paper present
PC005-09	Holding tray pick-up detection signal	PS17	PS17D	J113B-11	1 : paper present
PC005-10	Holding tray re-circulating lever home position signal	PS19	HTLPD	J113B-6	0 : home position
PC005-11	Not used				
PC005-12	Holding tray unit detection signal	HT	HTCNT	J113A-14	0 : holding try unit connected
PC005-13	Power switch ON detection signal	SW1	SW1ON	J102A-6	0 : ON
PC005-14	Control card detection signal	CCV	CCNNT	J106-B2	1 : car present
PC005-15	Internal signal (encoder error detection)				1 : error

Address	Description	Name	Signal	Jack	Remarks
PC006-00	Hopper motor(toner stirring) drive signal	M10	M10ON	J105A-3 J105A-4	1 : ON
PC006-01	Pre-exposure LED ON signal	LA2	PEXP	J103-B2	1 : ON
PC006-02	Hopper motor (toner supply) drive signal	M11	M11ON	J105A-1 J105A-2	1 : ON
PC006-03	Drum heater full-wave/half-wave switching signal	H3	DHRD	J102B-1	1 : half-wave 0 : full-wave
PC006-04	Total copy counter drive signal	CNT1	TCNTD	J104B-2	1 : count
PC006-05	Option copy counter drive signal	CNT2	OPCNTD	J104B-6	1 : count
PC006-06	Scanner scanning fan drive signal (half wave)	FM08	FM8D	J104A-5	1 : half wave
PC006-07	Scanner cooling fan drive signal (full speed)	FM08	FM8D	J104A-5	1 : full speed
PC006-08	Fixing drive solenoid drive signal	SL03	FXDSD	J108B-18	1 : ON
PC006-09	Fixing cleaning belt drive signal	SL14		J108A-11	1 : ON
PC006-10	Delivery paper deflecting plate solenoid drive signal	SL02	DPDSD	J108B-10	1 : ON
PC006-11	Holding tray re-circulating bar motor drive signal	M07	M7ON	J113A-9	1 : ON
PC006-12	Holding tray registration clutch drive signal	CL03	HTRGCD	J113B-7	1 : ON
PC006-13	Holding tray separation clutch drive signal	CL06	HTSPCD	J113B-8	1 : ON
PC006-14	Holding tray forward clutch dive signal	CL05	HTFWCD	J113A-7	1 : ON
PC006-15	Holding tray reversing clutch drive signal	CL04	HTRVCD	J113A-6	1 : ON

Address	Description	Name	Signal	Jack	Remarks
PC007-00	Upper right door open detection signal	PS41	RUPDOP	J119B-4	1 : closed 0 : open
PC007-01	Lower right door open detection signal	PS42	RLWDOP	J119B-7	1 : closed 0 : open
PC007-02	Copyboard cover closed signal	PS05	CBCC	J112A-4	1 : closed 0 : open
PC007-03	Scanner home position signal	PS01	SCHP	J111A-2	1 : home position
PC007-04	Right deck/cassette 1 open/closed detection signal	PS38	RDEOP	J116B-5	1 : closed 0 : open
PC007-05	Left deck/cassette 2 open/closed detection signal	PS40	LDEOP	J131-2	1 : closed 0 : open
PC007-06	Cassette-1 paper length signal	SV1	C1PL0	J122A-11	
PC007-07	Cassette-1 paper length signal	SV1	C1PL1	J122A-12	
PC007-08	Cassette-2 paper length signal	SV2	C2PL0 C2PL1	J122B-11	
PC007-09	Cassette-2 paper length signal	SV2	C2PL1	J122B-12	
PC007-10	Right deck paper detection signal	PS32	RDPD/ C1PD	J116A-7	1 : paper present
PC007-11	Left deck paper detection signal	PS35	LDPD/ C2PD	J121A-7	1 : paper present
PC007-12	Pick-up vertical path 1 paper detection signal	PS33	PS33D	J119A-7	1 : paper present
PC007-13	Pick-up vertical path 2 paper detection signal	PS36	PS36D	J121B-10(4) J120-7(K)	
PC007-14	Right deck lifter position sensor signal	PS31 PS37	C1LTP RDEL	J116A-4	1 : lifter position
PC007-15	Left deck lifter position sensor signal	PS34 PS39	C2LTP LDEL	J121A-4	1 : lifter position

Address	Description	Name	Signal	Jack	Remarks
PC008-00	Cassette 3 paper length 0 signal	SV-1	C3PL0	J122A-7	
PC008-01	Cassette 3 paper length 1 signal	SV-1	C3PL1	J122A-8	
PC008-02	Cassette 4 paper length 0 signal	SV-2	C4PL0	J122B-7	
PC008-03	Cassette 4 paper length 1 signal	SV-2	C4PL1	J122B-8	
PC008-04	Pick-up vertical path 3 paper detection signal	PS27	PS27D	J117B-4	1 : paper present
PC008-05	Pick-up vertical path 4 paper detection signal	PS30	PS30D	J130B-4	1 : paper present
PC008-06	Cassette 3 paper detection signal	PS26	C3PD	J117A-7	1 : paper present
PC008-07	Cassette 4 paper detection signal	PS29	C4PD	J130A-7	1 : paper present
PC008-08	Cassette 3 lifter position sensor signal	PS25	C3LTP	J117A-4	1 : upper limit
PC008-09	Cassette 4 lifter position sensor signal	PS28	C4LTP	J130A-4	1 : upper limit
PC008-10	Internal signal (fixing assembly temperature error detection)				
PC008-11	Internal signal (CVR error detection)				
PC008-12	Internal signal (SSR error detection)				
PC008-13	Internal signal (power switch open circuit detection)				
PC008-14	Internal signal (total copy counter open circuit detection)				
PC008-15	Internal signal (option counter open circuit detection)				

Address	Description	Name	Signal	Jack	Remarks
PC009-00	Holding tray feeding unit detection	HT	HTFCNT	J119A-2	0 : Holding tray feeding unit connected
PC009-01	Fixing claw jam detection signal	PS52	FXCJS	J108A-19	1 : Paper present
PC009-02	Service switch detection signal	SSW1	SSWON	J106B-5	1 : ON
PC009-03	Scanner locked detection signal	PS48	SCLK	J114A-14	1 : Locked
PC009-04	Left deck pick-up outlet paper detection signal	PS49	LEXTPD	J121B-5	1 : Paper present
PC009-05	Cassette 3 open/closed detection	PS50	C3SS	J117B-7	1 : Open 0 : Closed
PC009-06	Cassette 4 open/clos4d detection	PS51	C4SS	J130B-7	1 : Open 0 : Closed
PC009-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC010-00	Not used				
PC010-01	Holding tray feeding 2 clutch drive signal	CL02	HTF2CD	J122B-4	1 : ON
PC010-02	Fixing/feeding unit locking solenoid drive signal	SL13	FFULSD	J108B-2	1 : ON
PC010-03	Power supply unit internal relay drive signal	RL401	RL401D	J102A-5	1 : ON
PC010-04	Not used				
PC010-05	Not used				
PC010-06	Not used				
PC010-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC011-00	Not used				
PC011-01	Not used				
PC011-02	Not used				
PC011-03	Not used				
PC011-04	Multifeeder pick-up solenoid drive signal	SL10	SL10D	J115-B13	1 : ON
PC011-05	Not used				
PC011-06	Internal signal (clock)				
PC011-07	Pick-up motor brake signal	M02	M02BLK	J114-B5	1 : Brake ON

Address	Description	Name	Signal	Jack	Remarks
PC012-00	Internal signal (digit)			J125-1	
PC012-01	Internal signal (digit)			J125-2	
PC012-02	Internal signal (digit)			J125-3	
PC012-03	Internal signal (digit)			J125-4	
PC012-04	Not used				
PC012-05	Not used				
PC012-06	Not used				
PC012-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC017-00	Internal signal (key return)			J125-5	
PC017-01	Internal signal (key return)			J125-6	
PC017-02	Internal signal (key return)			J125-7	
PC017-03	Internal signal (key return)			J125-8	
PC017-04	Internal signal (key return)			J125-9	
PC017-05	Internal signal (key return)			J125-10	
PC017-06	Internal signal (key return)			J125-11	
PC017-07	Internal signal (key return)			J125-12	

Address	Description	Name	Signal	Jack	Remarks
PC020	Multifeeder paper width signal (analog)			J115B-4	
PC021	Cassette 1 paper width signal	SVR1	C1PW	J118A-6	
PC022	Cassette 2 paper width signal	SVR2	C2PW	J118A-9	
PC023	Photosensitive drum potential signal (analog)		POT	J103B-9	
PC024	Cassette 3 paper width signal	SVR3	C3PW	J118B-2	
PC025	Cassette 4 paper width signal	SVR4	C4PW	J118B-5	
PC026	Not used				

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Address	Description	Name	Signal	Jack	Remarks
PC027-00	Solenoid 2 drive signal		SL2D		0 : ON
PC027-01	Solenoid 1 drive signal		CL1D		0 : ON
PC027-02	Solenoid 4 drive signal		SL4D		0 : ON
PC027-03	Solenoid 6 drive signal		SL6D		0 : ON
PC027-04	Solenoid 5 drive signal		SL5D		0 : ON
PC027-05	Solenoid 1 drive signal (free)		SL1RD		0 : OFF
PC027-06	Solenoid 1 drive signal		SL1AD		0 : ON
PC027-07	Solenoid over drive signal				0 : ON
PC028-00	Not used				
PC028-01	Not used				
PC028-02	Not used				
PC028-03	Not used				
PC028-04	Stopper motor (M7) excitation A signal				0 : ON
PC028-05	Stopper motor (M7) excitation B signal				0 : ON
PC028-06	Stopper motor (M7) drive signal				0 : ON
PC028-07	AE sensor discharge signal				0 : ON
PC029-00	Edge detection signal		EDGO		1 : ON
PC029-01	Cooling fan (M9) drive signal		M9D		0 : ON
PC029-02	Re-circulating motor (M4) drive signal		RCMD		0 : ON
PC029-03	Not used				
PC029-04	Not used				
PC029-05	Not used				
PC029-06	Not used				
PC029-07	Not used				

RDF

Address	Description	Name	Signal	Jack	Remarks
PC030-00	Edge detection signal (S20)		EDG		0: Paper present
PC030-01	Registration detection signal (S3)		RG1		0: Paper present
PC030-02	Belt motor clock detection signal (S11)		BTLK		Alternates between 0 and1
PC030-03	Pick-up motor clock detection signal (S9)		PCLK		Alternates between 0 and 1.
PC030-04	Pre-registration detection signal (S17)		RGF		0: Paper present
PC030-05	Not used				
PC030-06	Not used				
PC030-07	Not used				
PC031-00	D/A converter serial signal				
PC031-01	D/A converter load signal				
PC031-02	Reversing motor (M2) mode 0 signal				
PC031-03	Revering motor (M2) mode 1 signal				
PC031-04	D/A converter serial communication clock signal				
PC031-05	Delivery motor clock detection signal (SL12)		DLCLK		Alternates between 0 and 1.
PC031-06	Not used				
PC031-07	Not used				
PC032-00	Internal signal (sensor sensitivity switching signal 2)				
PC032-01	Internal signal (sensor sensitivity switching signal 1)				
PC032-02	Reversing motor (M2) drive signal				0 : ON
PC032-03	Belt motor clock detection signal (S11)		BTLK		Alternates between 0 and 1.
PC032-04	Feeding motor clock detection signal (S22)		FDCLK		Alternates between 0 and 1.
PC032-05	Pick-up motor (M1) CW rotation signal				1: CW rotation
PC032-06	Pick-up motor (M1) rotation speed control signal				1: ON
PC032-07	Pick-up motor (M1) CCW rotation signal				1: CCW rotation

RDF

Address	Description	Name	Signal	Jack	Remarks
PC033-00	Reversing motor (M2) rotation speed control signal				
PC033-01	Solenoid 7 drive signal		SL7D		0 : ON
PC033-02	Delivery motor (M5) rotation speed control signal				
PC033-03	Solenoid 8 drive signal		SL8D		0 : ON
PC033-04	Belt motor (M3) pulse 1 signal				
PC033-05	Belt motor (M3) pulse 2 signal				
PC033-06	Belt motor (M3) pulse 3 signal				
PC033-07	Belt motor (M3) pulse 4 signal				
PC034-00	Tray motor (M6) drive signal		TRMD		0 : ON
PC034-01	Solenoid 2 drive signal		SL2D		0 : ON
PC034-02	Not used				
PC034-03	Pick-up roller home position detection signal 2 (S21)		PRHP2		0 : Home position
PC034-04	Not used				
PC034-05	Slip detection signal (S10)		SLP		Alternates between 1 and 0
PC034-06	Pick-up motor clock detection signal		PCLK		Alternates between 1 and 0
PC034-07	Reversal detection signal (S5)		TRS		1: Paper present
PC035-00	Not used				
PC035-01	Not used				
PC035-02	Not used				
PC035-03	Not used				
PC035-04	DIP switch 1-1 detection signal				1 : ON
PC035-05	DIP switch 1-2 detection signal				1 : ON
PC035-06	DIP switch 1-3 detection signal				1 : ON
PC035-07	DIP switch 1-4 detection signal				1 : ON

RDF

Address	Description	Name	Signal	Jack	Remarks
PC036-00	Not used				
PC036-01	Not used				
PC036-02	Not used				
PC036-03	Not used				
PC036-04	DIP switch 1-5 detection signal				1 : ON
PC036-05	DIP switch 1-6 detection signal				1 : ON
PC036-06	DIP switch1-7 detection signal				1 : ON
PC036-07	Right cover open/closed detection signal (S23/24)		RCVF		1 : Closed
PC037-00	Not used				
PC037-01	Not used				
PC037-02	Not used				
PC037-03	Not used				
PC037-04	Push switch 1 detection signal				1 : ON
PC037-05	Push switch 2 detection signal				1 : ON
PC037-06	Push switch 3 detection signal				1 : ON
PC037-07	Left cover open/closed detection signal (S13/14)		LCVF		1 : Closed
PC038-00	Not used				
PC038-01	Not used				
PC038-02	Not used				
PC038-03	Not used				
PC038-04	Re-circulating lever hold detection signal				0 : Hold
PC038-05	RDF open detection signal (S31)		RFOS		1 : Closed
PC038-06	Manual feed set detection signal (S32)		MFST		1 : Paper present
PC038-07	Sub tray detection signal (S28)		TYP		1 : Closed

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Address	Description	Name	Signal	Jack	Remarks
PC039-00	Re-circulating lever detection signal 2 (S30)		RSC2		0 : Flag absent
PC039-01	Re-circulating lever detection signal 1 (S29)		RSC1		0 : Flag absent
PC039-02	Pick-up roller home position detection signal 1 (S8)		PRHP1		1 : Home position
PC039-03	Skew detection signal 2 (S16)		SKW2		1 : Paper present
PC039-04	Pick-up detection signal 2 (S15)		PDP2		1 : Paper present
PC039-05	Power supply down monitor signal				1 : Voltage down
PC039-06	Stopper home position detection signal (S26)		SPHP		1 : Home position
PC039-07	Tray position detection signal (S25)		TRY		1 : Down
PC040-00	Not used				
PC040-01	Original set indicator LED ON signal				0 : ON
PC040-02	LED1 ON signal				0 : ON
PC040-03	LED2 ON signal				0 : ON
PC040-04	LED3 ON signal				0 : ON
PC040-05	Not used				
PC040-06	Not used				
PC040-07	Not used				
PC041-00	Matrix digit 0 signal				
PC041-01	Matrix digit 1 signal				
PC041-02	Matrix digit 2 signal				
PC041-03	Matrix digit 3 signal				
PC041-04	Matrix common 0 signal				
PC041-05	Matrix common 1 signal				
PC041-06	Matrix common 2 signal				
PC041-07	Matrix common 3 signal				

RDF

Address	Description	Name	Signal	Jack	Remarks
PC042-00	A/D de-multiplexor selection signal 1				
PC042-01	A/D de-multiplexor selection signal 2				
PC042-02	A/D de-multiplexor selection signal 3				
PC042-03	Encoder FV converter adjustment signal 3				
PC042-04	Feeding motor (M8) drive signal				0 : ON
PC042-05	Feeding motor CW rotation signal				1 : CW rotation
PC042-06	Feeding motor mode 1 signal				
PC042-07	Feeding motor mode 2 signal				
PC043-00	Skew detection signal 1 (S4)		SKW1		0 : Paper present
PC043-01	Manual feed registration detection signal (S19)		MFRG		0 : Paper present
PC043-02	Original detection signal 1 (S1)		DOD1		1 : Paper present
PC043-03	Original detection signal 2 (S27)		DOD2		1 : Paper present
PC043-04	Original detection signal 1 (S2)		PDP1		1 : Paper present
PC043-05	Reversal detection signal (S5)		TRS		1 : Paper present
PC043-06	Delivery detection signal (S6)		DER		1 : Paper present
PC043-07	Power supply drop monitor signal (internal)				1 : Voltage down
PC048	Belt motor current control DA signal				Hexadecimal, 4-digit notation
PC049	Reversal motor current control DA signal				
PC050	AE sensor LED (O) DA signal				
PC051	AE sensor LED (G) DA signal				
PC052	AE sensor LED offset DA signal				
PC053	Original sensor (S1) DA signal				
PC054	Registration sensor (S3) DA signal				
PC055	Skew sensor (S4) DA signal				

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Address	Description	Name	Signal	Jack	Remarks
PC056	Image leading edge sensor (S20) DA signal				Hexadecimal, 4-digit notation
PC057	Manual feed paper set sensor (S32) DA signal				
PC058	Original sensor 2 (S27) DA signal				
PC059	Not used				
PC060	Original width detecting variable resistor resistance (VR1)				Hexadecimal, 4-digit notation

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC062-00	Feeding motor (M1) control signal		FDPWM		1 : ON
PC062-01	Push bar drive motor (M7) rotation control signal				1 : Up
PC062-02	Not used				
PC062-03	Push bar drive motor (M7) drive signal				1 : ON
PC062-04	Guide bar motor (M8) pulse signal 1		GBMA		1 : ON
PC062-05	Guide bar motor (M8) pulse signal 2		GBMB		1 : ON
PC062-06	Guide bar motor (M8) pulse signal 3		GBMA		1 : ON
PC062-07	Guide bar motor (M8) pulse signal 4		GBMB		1 : ON
PC063-00	Reference wall drive motor (M6) control signal 1		GWMA		1 : ON
PC063-01	Reference wall drive motor (M6) control signal 2		GWMB		1 : ON
PC063-02	Non sort paper detection signal (PI3)		NSPEXT		1 : Paper present
PC063-03	Reference wall home position signal (PI13)		GWHP		1 : Home position
PC063-04	Sort paper detection signal (PI4)		SPEXT		1 : Paper present
PC063-05	Guide bar home position signal (PI16)		GBHP		1 : Home position
PC063-06	Multi guide drive motor control signal 1 (M5)		MGMA		1 : ON
PC063-07	Multi guide drive motor control signal 1 (M5)		MGMB		1 : ON
PC064-00	D/A converter serial signal				
PC064-01	Not used				
PC064-02	Feeding motor (M1) speed change signal		FDMVC		1 : Control speed
PC064-03	D/A converter load signal				0 : Load
PC064-04	D/A converter serial communication clock signal				
PC064-05	Not used				
PC064-06	Not used				
PC064-07	Not used				

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC065-00	Feeding motor (M1) CW rotation signal		FDMCCW		1 : ON
PC065-01	Feeding motor (M1) CCW rotation signal		FDMCCW		1 : ON
PC065-02	Stapler unit fixed claw releasing solenoid (SL5) drive signal		MHRSLD		1 : ON
PC065-03	Paper path switching solenoid (SL1) drive signal		PSLD		1 : ON
PC065-04	Paper retaining solenoid (SL3) drive signal		PHSLD		1 : ON
PC065-05	Stapler unit position fixing claw releasing solenoid (SL5) drive signal		HDRSLD		1 : ON
PC065-06	Stapler motor (M2) CCW rotation signal		SPMCCW		1 : ON
PC065-07	Stapler motor (M2) CW rotation signal		SPMCW		1 : ON
PC066-00	Bin shift motor (M9) drive signal				1 : Up
PC066-01	Stapler unit swing motor (M4) rotation signal				1 : ON
PC066-02	Stapler unit swing motor (M4) drive signal				1 : ON
PC066-03	Not used				
PC066-04	Not used				
PC066-05	Not used				
PC066-06	Not used				
PC066-07	Not used				
PC067-00	Stapler unit shift home position signal (S2)		MVHP		1 : Home position
PC067-01	Logic voltage monitor signal				0 : Voltage down
PC067-02	Not used				
PC067-03	Bin internal paper sensor 2 analog input signal (S7)				At input, alternates between 1 and 0.
PC067-04	Stapler inside paper sensor analog input signal				At input, alternates between 1 and 0.
PC067-05	Bin internal paper sensor analog input signal (S4)				At input, alternates between 1 and 0.
PC067-06	Feeding motor current value analog input signal				At input, alternates between 1 and 0.
PC067-07	Feeding motor speed change analog input signal				At input, alternates between 1 and 0.

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC068-00	Not used				
PC068-01	Not used				
PC068-02	Not used				
PC068-03	Not used				
PC068-04	Stapler unit shift motor (M3) pulse signal 1		SLDMB		1 : ON
PC068-05	Stapler unit shift motor (M3) pulse signal 2		SLDMA		1 : ON
PC068-06	Stapler unit shift motor (M3) pulse signal 3		SLDMB		1 : ON
PC068-07	Stapler unit drive motor (M3) pulse signal 4		SLDMA		1 : ON
PC069-00	Stapler unit swing motor (PI8) clock signal		SWMCLK		Alternates between 0 and 1.
PC069-01	Bin shift motor (PI17) clock signal		BMCLK		Alternates between 0 and 1.
PC069-02	Feeding motor (PI5) clock signal		FMCLK		Alternates between 0 and 1.
PC069-03	Lead cam position detection signal (PI20)		LDP		Alternates between 0 and 1.
PC069-04	Lead cam center position detection signal (PI21)		LDCP		1 : ON
PC069-05	Not used				1 : ON
PC069-06	Not used				
PC069-07	Not used				
PC070-00	Stapler unit swing motor (M4) pulse oscillation signal				
PC070-01	Push bar drive motor (M7) pulse oscillation signal				
PC070-02	Feeding motor (M1) rotation speed reference signal		FDREF		
PC070-03	Not used				
PC070-04	Bin shift motor (M9) pulse signal 1		SFTA		1 : ON
PC070-05	Bin shift motor (M9) pulse signal 2		SFTB		1 : ON
PC070-06	Bin shift motor (M9) pulse signal 3		SFTA		1 : ON
PC070-07	Bin shift motor (M9) pulse signal 4		SFTB		1 : ON

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC071-00	Matrix digit output signal 0				
PC071-01	Matrix digit output signal 1				
PC071-02	Matrix digit output signal 2				
PC071-03	Matrix digit output signal 3				
PC071-04	Matrix digit output signal 4				
PC071-05	Matrix SEG output signal 0				
PC071-06	Matrix SEG output signal 1				
PC071-07	Matrix SEG output signal 2				
PC072-00	Matrix COM input signal 0				
PC072-01	Matrix COM input signal 1				
PC072-02	Matrix COM input signal 2				
PC072-03	Matrix COM input signal 3				
PC072-04	Matrix COM input signal 4				
PC072-05	Gear swing (SL4) drive signal		GCSLD		1 : ON
PC072-06	Not used				
PC072-07	All solenoid drive signal				1 : All ON
PC073-00	Stapling home position detection signal (Q1)		SPL-HP		1 : Home position
PC073-01	Reference wall home position detection signal (PI13)		GWHP		1 : Home position
PC073-02	Stapler unit swing home position detection signal (PI9)		SWHP		1 : Home position
PC073-03	Multi guide home position detection signal (PI12)		MGHP		1 : Home position
PC073-04	Stapler unit swing prohibit position signal (MSW2)		SGSTPP		1 : Stapling reading
PC073-05	Stapler unit orientation position 2 signal (S1)		HLD2		1 : Front 1 location
PC073-06	Stapler unit orientation position 1 signal (S1)		HLD1		1: 2 locations/rear signal location
PC073-07	Paper retaining signal (PI11)		PHS		1: Paper retaining position

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC074-00	Not used				
PC074-01	Multi guide drive motor/reference wall drive motor drive signal				1: ON
PC074-02	Not used				
PC074-03	Not used				
PC074-04	Not used				
PC074-05	Not used				
PC074-06	Not used				
PC074-07	Not used				
PC075-00	Stapling position LED 4 ON signal				1: ON
PC075-01	Stapling position LED 1 ON signal				1: ON
PC075-02	Staple absent LED ON signal				1: ON
PC075-03	Stapling position LED 5 ON signal				1: ON
PC075-04	Stapling position LED 2 ON signal				1: ON
PC075-05	Front retrieval key LED ON signal				1: ON
PC075-06	Stapling position LED 3 ON signal				1: ON
PC075-07	Staple key LED ON signal				1: ON
PC076-00	DIP switch 1-4 detection signal				1: ON
PC076-01	DIP switch 1-3 detection signal				1: ON
PC076-02	DIP switch 1-2 detection signal				1: ON
PC076-03	DIP switch 1-1 detection signal		JNTS		1: ON
PC076-04	Joint signal (PI1)				1: Connected
PC076-05	Not used				
PC076-06	Not used				
PC076-07	Not used				

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC077-00	DIP switch 1-8 detection signal				1: ON
PC077-01	DIP switch 1-7 detection signal				1: ON
PC077-02	DIP switch 1-6 detection signal				1: ON
PC077-03	DIP switch 1-5 detection signal				1: ON
PC077-04	Front door open signal (MSW3)		DROPN		1: Closed
PC077-05	Not used				
PC077-06	Not used				
PC077-07	Not used				
PC078-00	Staple mode key check signal				1: ON
PC078-01	Stapler unit set detection signal				1: Stapler unit present
PC078-02	Staple absent signal (SW1)		HKEPN		1: Staple absent
PC078-03	Stapler safety detection signal (MSW1)		SFTYSW		1: ON
PC078-04	Stapler unit swing position signal (PI10)		SWGP		1: ON
PC078-05	Not used				
PC078-06	Not used				
PC078-07	Not used				
PC079-00	Front retrieval key check signal				1: ON
PC079-01	Shift down key check signal				1: ON
PC079-02	Bin home position signal (PI18)		BHP		1: Home position
PC079-03	PCB check signal				0: S-order PCB
PC079-04	Front door open internal signal		DROPN		1: Door closed
PC079-05	Not used				
PC079-06	Not used				
PC079-07	Not used				

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC080-00	Staple start key check signal				1: ON
PC080-01	Shift up key check signal				1: ON
PC080-02	Feeding guide home position detection signal (PI6)				1: ON
PC080-03	Bin external paper detection signal (PI7)				1: Paper present
PC080-04	Feeding guide up signal (PI2)				1: UP
PC080-05	Not used				
PC080-06	Not used				
PC080-07	Not used				
PC081-00	Not used				
PC081-01	Not used				
PC081-02	Not used				
PC081-03	Not used				
PC081-04	Not used				
PC081-05	Controller PCB LED 1 ON signal				1: ON
PC081-06	Controller PCB LED 2 ON signal				1: ON
PC081-07	Not used				
PC083-00~07	Bin internal paper sensor 2 (S7) A/D input value				Hexadecimal, 4-digit notation
PC084-00~07	Stapler internal sensor (S5) A/D input value				
PC085-00~07	Bin internal paper sensor (S4) A/D input value				
PC086-00~07	Feeding motor current value (M1) A/D input value				
PC087-00~07	Feeding motor speed change (M1) A/D input value				
PC088-00~07	Stapler internal paper sensor (S5) D/A output signal				
PC089-00~07	Swing motor current value (M4) D/A output value				
PC090-00~07	Stapler unit shift motor current value (M3) D/A output value				

Sorter

Address	Description	Name	Signal	Jack	Remarks
PC091-00~07	Bin sift motor current value (M9) D/A output value				Hexadecimal, 4-digit notation
PC092-00~07	Guide bar drive motor current value (M8) D/A output value				
PC093-00~07	Bin internal sensor intensity value (S4) D/A output value				
PC094-00~07	Push bar drive motor current value (M7)				
PC095-00~07	Bin internal paper sensor 2 intensity value (S7) D/A output value				

Address	Description	Name	Signal	Jack	Remarks
PC097-00 PC097-01	Primary charging wire cleaning motor drive signal	M12	PCLM	J103B-3 J103B-4	1/0:Motor CW 0/1:Motor CCW
PC097-02 PC097-03	Pre-transfer charging wire cleaning motor drive signal	M13	PTRCLM	J103A-1 J103A-2	1/0:Motor CW 0/1:Motor CCW
PC097-04 PC097-05	Transfer/separation charging wire cleaning motor drive signal	M06	TSCLM	J108B-19 J108A-1	1/0:Motor CW 0/1:Motor CCW
PC097-06	Primary charging wire cleaner home position signal	MSW1	PCLHP	J103B-5	1:Home position
PC097-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC098-00	Not used				
PC098-01	Pre-transfer charging wire cleaner home position signal	MSW3	PTCLHP	J103A-5	1:Home position
PC098-02	Transfer/separation charging wire cleaner home position signal	MSW2	TSCLHP	J108A-3	1:Home position
PC098-03	Not used				
PC098-04	Holding tray X motor home signal	M08	M08HLD	J113A-12	
PC098-05	Holding tray X motor (phase A) signal	M08	M08A	J113A-13	
PC098-06	Holding tray X motor (phase B) signal	M08	M08B	J113A-11	
PC098-07	Holding tray Y motor hold signal	M09	M09HLD	J113B-3	

Address	Description	Name	Signal	Jack	Remarks
PC100-00	Holding tray Y motor (phase A) signal	M09	M09A	J113B-2	
PC100-01	Holding tray Y motor (Phase B) signal	M09	M09B	J113B-4	
PC100-02	Holding tray X home position signal	PS21	HTXHP	J113A-10	
PC100-03	Holding tray Y home position signal	PS20	HTYHP	J113B-1	1:Home position
PC100-04	Lens X motor hold signal	M04	M04ACM M04BCM	J110A-3 J110A-6	
PC100-05	Lens X motor (phase A) signal	M04	M04A	J110A-1 J110A-2	
PC100-06	CVR PWM signal			J111B-7	
PC100-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC101-00	Lens X motor (phase B) signal	M04	M04B	J110A-4 J110A-5	
PC101-01	Lens Y motor hold signal	M05	M05ACM M05BCM	J110A-12 J110A-15	
PC101-02	Not used				
PC101-03	Not used				
PC101-04	Not used				
PC101-05	Not used				
PC101-06	Not used				
PC101-07	Not used				

Address	Description	Name	Signal	Jack	Remarks
PC102-00	Lens Y motor (phase A) signal	M05	M05A	J110A-10 J110A-11	
PC102-01	Lens Y motor (phase B) signal	M05	M05B	J110A-13 J110A-14	
PC102-02	Lens X home position signal	PS06	LXHP	J110A-8	1:Home position
PC102-03	Lens Y home position	PS07	LYHP	J110B-2	1:Home position
PC102-04	Internal signal (lens X drive end)				
PC102-05	Internal signal (lens Y drive end)				
PC102-06	Internal signal (holding tray X drive end)				
PC102-07	Internal signal (holding tray Y drive end)				

Address	Description	Name	Signal	Jack	Remarks
PC104-00	Not used				
PC104-01	Not used				
PC104-02	Internal signal (holding tray X drive start)				
PC104-03	Not used				
PC104-04	Not used				
PC104-05	Not used				
PC104-06	Not used				
PC104-07	Not used				

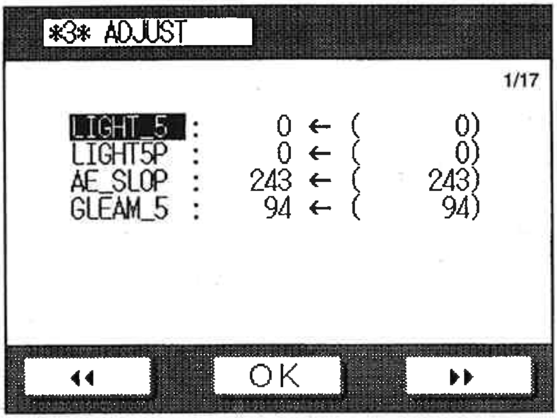
Address	Description	Name	Signal	Jack	Remarks
PC105-00	Internal signal (holding tray Y drive start)				
PC105-01	Not used				
PC105-02	Not used				
PC105-03	Not used				
PC105-04	Not used				
PC105-05	Not used				
PC105-06	Not used				
PC105-07	Not used				

F. Adjustment Mode (*3*)

Press the <</>> key to select the screen.

Press the item to highlight.

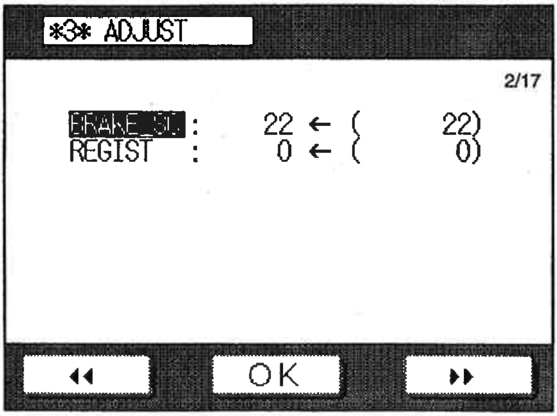
Enter the appropriate value on the keypad, and press the OK key to accept. (Use the User Mode key to check.)



```
*3* ADJUST
                                  1/17
LIGHT_5  :    0 ← (      0)
LIGHT5P  :    0 ← (      0)
AE_SLOP  :  243 ← (    243)
GLEAM_5  :   94 ← (     94)
```

Screen 3-1

Item	Description	Settings	Remarks
LIGHT-5	Use it to adjust the reference ON voltage of the scanning lamp for copying.	-35~35	A higher setting will make the copies lighter.
LIGHT-5P	Use it to adjust the reference ON voltage of the scanning lamp for copying in photo mode.	-35~35	A higher setting will make the copies lighter.
AE-SLOP	Use it to adjust the intensity for newspaper originals in AE mode.	0~1023	A higher setting will make newspaper copies darker.
GLEAM-5	Use it to adjust the optimum exposure.	53~139	A higher setting will make the copies lighter.



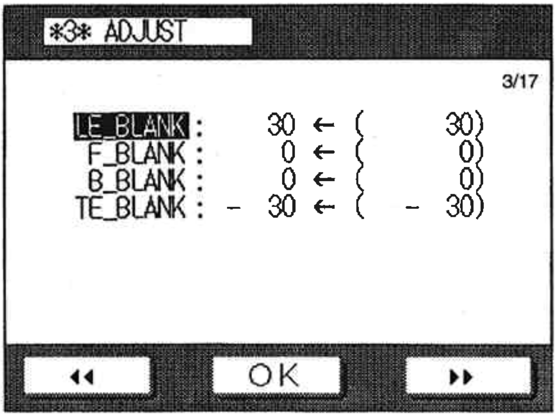
3 ADJUST

2/17

BRAKE_SC : 22 ← (22)
REGIST : 0 ← (0)

Screen 3-2

Item	Description	Settings	Remarks
BRAKE-SC	Use it to adjust the braking when the scanner moves in reverse.	0~100	A higher setting will increase the braking.
REGIST	Use it to adjust the margin (registration) along the leading edge of copies.	-100~100	A higher setting will delay the timing at which the registration roller turns ON, thereby increasing the leading edge margin. (in 0.1mm increments)



3 ADJUST

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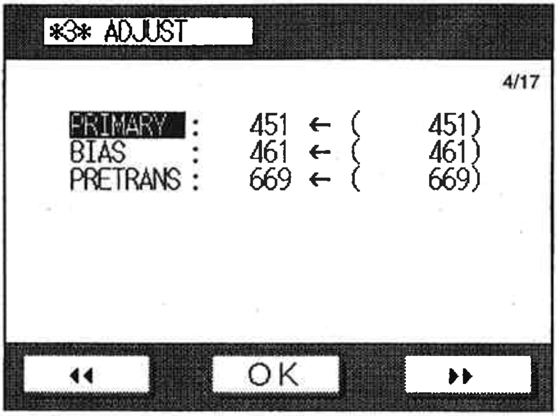
LE_BLANK : 30 ← (30)
F_BLANK : 0 ← (0)
B_BLANK : 0 ← (0)
TE_BLANK : - 30 ← (- 30)

Screen 3-3

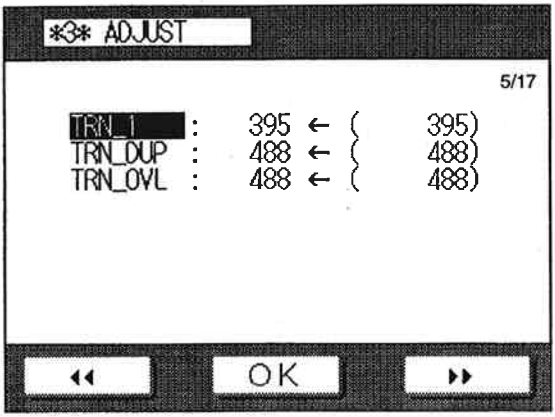
Item	Description	Settings	Remarks
LE-BLANK	Use it to adjust the leading edge non-image width (ON period of the blank exposure lamp).	-100~100	A higher setting will increase the leading edge non-image margin.
F-BLANK	Use it to adjust the margin along the front (ON period of the blank exposure lam).	-100~100	A higher setting will increase the margin along the front.
B-BLANK	Use it to adjust the rear margin (ON period of the blank exposure lamp).	-100~100	A higher setting will decrease the rear margin.
TE-BLANK	Use it to adjust the trailing edge non-image width (ON period of the blank exposure lamp).	-100~100	A higher setting will decrease the trailing edge non-image margin.



PRIMARY : 451 ← (451)
BIAS : 461 ← (461)
PRETRANS : 669 ← (669)

Screen 3-4

Item	Description	Settings	Remarks
PRIMARY	Use it to adjust the application voltage for the primary charging assembly. (Be sure to enter the value recorded on the service label when replacing the DC controller PCB in the field.)	0~1023	
BIAS	Use it to adjust the developing bias. (Be sure to enter the value on the service label whenever replacing the DC controller PCB in the field.)	Label value ±34	
PRETRANS	Use it to adjust the current for the pre-transfer charging assembly. (Be sure to enter the value recorded on the service label whenever replacing the DC controller PCB in the field.)	Label value ±200	



3 ADJUST

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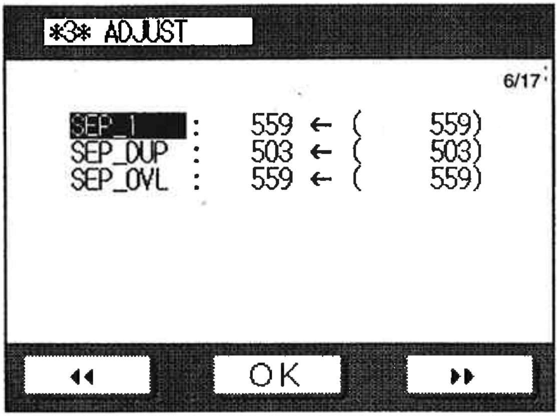
```
TRN_1   :  395 ← (  395)
TRN_DUP :  488 ← (  488)
TRN_OVL :  488 ← (  488)
```

Screen 3-5

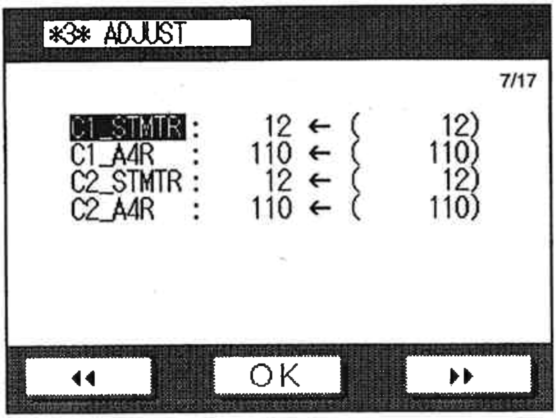
Item	Description	Settings	Remarks
TRN-1	Use it to adjust the current (1st side) for the transfer charging assembly. (Be sure to enter the value recorded on the service label whenever replacing the DC controller PCB in the field.)	Label value ±100	
TRN-DUP	Use it to adjust the current (2nd side, 2-sided copy) for the transfer charging assembly. (Be sure to enter the value recorded on the service label whenever replacing the DC controller PCB in the field.)	Label value ±100	
TRN-OVL	Use it to adjust the current (2nd side, overlay copy) for the transfer charging assembly. (Be sure to enter the value on the service label whenever replacing the DC controller PCB in the field.)	Label value ±100	



SEP_1 : 559 ← (559)
SEP_DUP : 503 ← (503)
SEP_OVL : 559 ← (559)

Screen 3-6

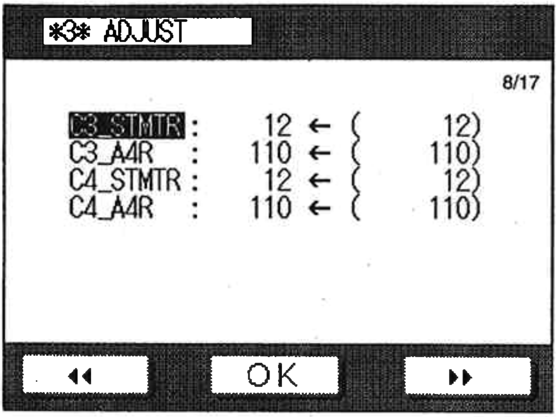
Item	Description	Settings	Remarks
SEP-1	Use it to adjust the current (1st side) for the separation charging assembly. (Be sure to enter the value on the service label whenever replacing the DC controller PCB in the field.)	Label value ±200	
SEP-DUP	Use it to adjust the current (2nd side, 2-sided copy) for the separation charging assembly. (Be sure to enter the value recorded on the service label whenever replacing the DC controller PCB in the field.)	Label value ±200	
SEP-OVL	Use it to adjust the current (2nd side, overlay copy) for the separation charging assembly. (Be sure to enter the value recorded on the service label whenever replacing the DC controller PCB.)	Label value ±200	



```
C1_STMTR :   12 ← (   12)
C1_A4R   :  110 ← (  110)
C2_STMTR :   12 ← (   12)
C2_A4R   :  110 ← (  110)
```

Screen 3-7

Item	Description	Settings	Remarks
C1-STMTR			100V model only
C1-A4R			100V model only
C2-STMTR			100V model only
C2-A4R			100V model only



3 ADJUST

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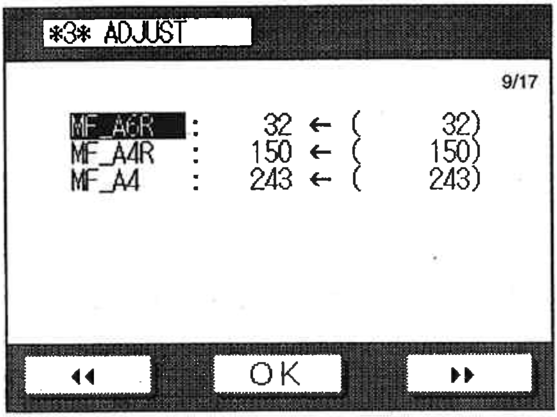
C3_STMTR : 12 ← (12)
C3_A4R : 110 ← (110)
C4_STMTR : 12 ← (12)
C4_A4R : 110 ← (110)

Screen 3-8

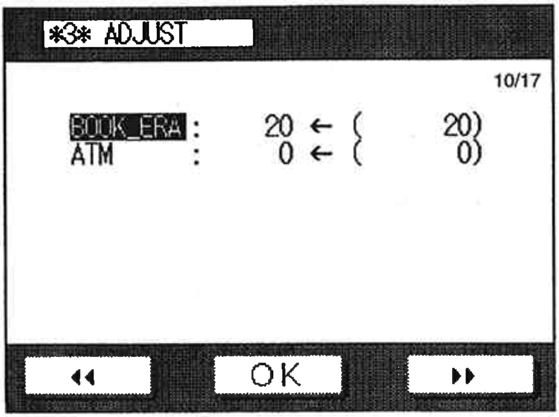
Item	Description	Settings	Remarks
C3-STMTR	Use it to fine-adjust and enter the paper width basic value (STMTR) for the cassette 3.	000~255	
C3-A4R	Use it to fine-adjust or enter the paper width basic value (A4R) for the cassette 3.	000~255	
C4-STMTR	Use it to fine-adjust or enter the paper width basic value (STMTR) for the cassette 4.	000~255	
C4-A4R	Use it to fine-adjust or enter the paper width basic value (A4R) for the cassette 4.	000~255	



MF_A6R : 32 ← (32)
MF_A4R : 150 ← (150)
MF_A4 : 243 ← (243)

Screen 3-9

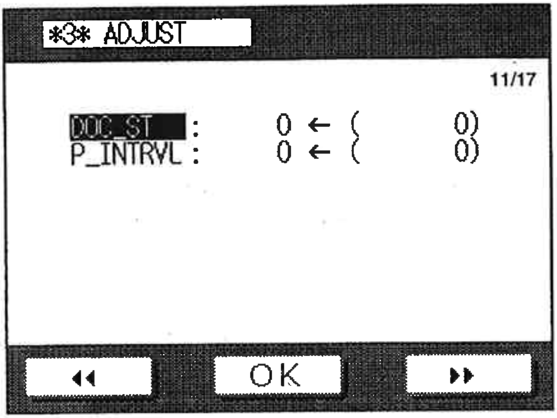
Item	Description	Settings	Remarks
MF-A6R	Use it to fine-adjust or enter the paper width basic value (A6R) for the multifeeder.	000~255	
MF-A4R	Use it to fine-adjust or enter the paper width basic value (A4R) for the multifeeder.	000~255	
MF-A4	Use it to fine-adjust or enter the paper width basic value (A4) for the multifeeder.	000~255	



BOOK_ERA : 20 ← (20)
ATM : 0 ← (0)

Screen 3-10

Item	Description	Settings	Remarks
BOOK-ERA	Use it to adjust the margin for book frame erasing mode.	10~30	Unit:1 mm A higher setting will increase the margin.
ATM	Use it to set the operating environment (atmospheric pressure of the site of installation). 0:1 ~ 0.75 atm (up to an elevation of 2500 m) 1:0.75 ~ 0.70 atm (between 2500 and 3000 m) 2:0.70 ~ 0.65 atm (between 3000 and 3500 m)	0~2	Decrease the target potential for potential control to avoid leakage under a low atmospheric pressure.



3 ADJUST

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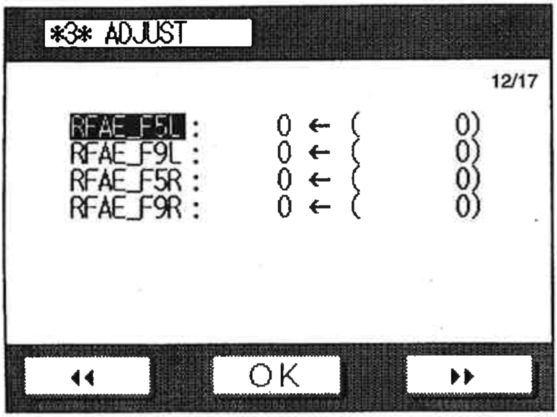
DOC_ST : 0 ← (0)

P_INTRVL : 0 ← (0)

Screen 3-11

Item	Description	Settings	Remarks
DOC-ST	Use it to adjust the original stop position when the RDF is in use. The RDF will switch among left pick-up, right pick-up, and manual feed position.	-1023~1023	Unit:0.5 mm The effective range is between -10 and +10; values outside the range will have no effect.
P-INTRVL *	Use it to adjust the sheet-to-sheet distance for the RDF (2-on-1 mode). The RDF will swing between left pick-up and right pick-up positions.	-1023~1023	Unit:0.5 mm The effective range is between -10 and + 10; values outside the range will have no effect.

* Used to adjust the sheet-to-sheet- distance for page composition mode with the RDF in use.(See pp. 5-32 through -35 of the RDF-D1 Service Manual. The service manual shows how to make adjustments on the RDF; the same may be performed in the copier's service mode, by changing the setting instead of pressing the DIP switch.)



RFAE_F5L : 0 ← (0)
RFAE_F9L : 0 ← (0)
RFAE_F5R : 0 ← (0)
RFAE_F9R : 0 ← (0)

Screen 3-12

Item	Description	Settings	Remarks
RFAE-F5L	Use it to adjust the RDF (AE mode and left pick-up) scanning lamp reference ON voltage.	-1023~ 1023	A higher setting will make the slope less steep.
RFAE-F9L	Use it to adjust the RDF (AE mode and left pick-up) newspaper original intensity.	-1023~ 1023	A higher setting will make the slope steeper.
RFAE-F5R	Use it to adjust the RDF (AE mode and right pick-up) scanning lamp reference ON voltage adjustment.	-1023~ 1023	A higher setting will make the slope less steep.
RFAE-F9R	Use it to adjust the RDF (AE mode and right pick-up) newspaper original intensity.	-1023~ 1023	A higher setting will make the slope steeper.

Note:

Keep the following in mind for 'DOC-ST', 'P-INTRVL', and 'LA-SPEED' in RDF-relate service mode:

1. These items affect the values stored in the memory on the RDF controller PCB; therefore, initializing the copier's RAM will not clear these values, not requiring re-input.
2. Changes in these items will change the values stored in the memory on the RDF controller PCB, and inputs will not directly affect the values in the memory; the operation will be as follows:

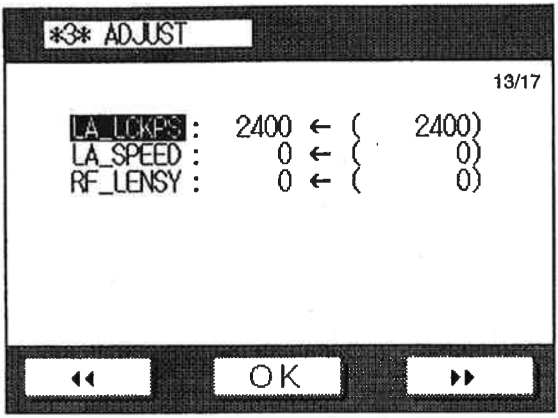
   Operation 1

   When 'DOC-ST $\overset{\text{NEW}}{5}$ ← $\overset{\text{OLD}}{(2)}$' is entered, (5-2 = +3), causing the original stop position to shift by =3 units.

   Operation 2

   When 'P-INTRVL:7 ← (-5)' is entered, {-7 - (-5) = -2}, causing the original stop position to shift by -2 units.

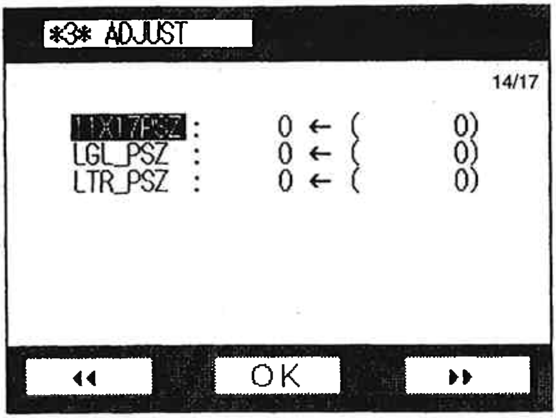
3. For these items, pick-up and delivery settings will be by the User Mode key (∗) on the copier's control panel instead of SW1 on the RDF controller PCB.



LA_LCKPS : 2400 ← (2400)
LA_SPEED : 0 ← (0)
RF_LENSY : 0 ← (0)

Screen 3-13

Item	Description	Settings	Remarks
LA-LCKPS	Use it to adjust the RDF (stream reading mode) image leading edge.	2300~2500	A higher setting will advance the timing at which the registration roller turns ON, thereby increasing the margin.
LA-SPEED	Use it to adjust the original feeding speed for stream reading.	-1023~1023	A higher setting will increase the speed, thereby reducing the image. About ±3 mm (6 mm total)
RF-LENSY	Use it to correct offset in Y direction of the lens when the RDF's right pick-up mode is used (i.e., to correct the displacement of the lens reference position in right pick-up mode in relation to left pick-up mode).	-50~50	A higher setting will increase the margin in stream reading, thereby shifting the copy image to the rear. Unit:0.1 mm



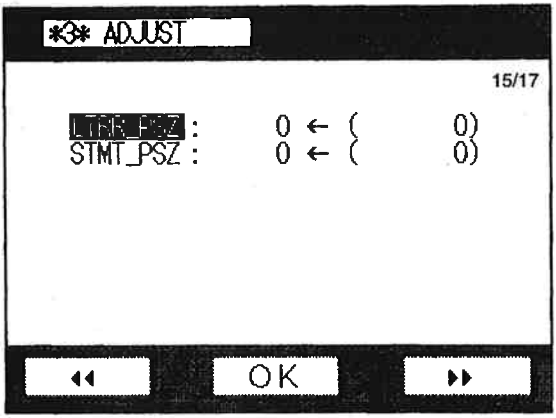
3 ADJUST

14/17

11X17PSZ : 0 ← (0)
LGL_PSZ : 0 ← (0)
LTR_PSZ : 0 ← (0)

Screen 3-14

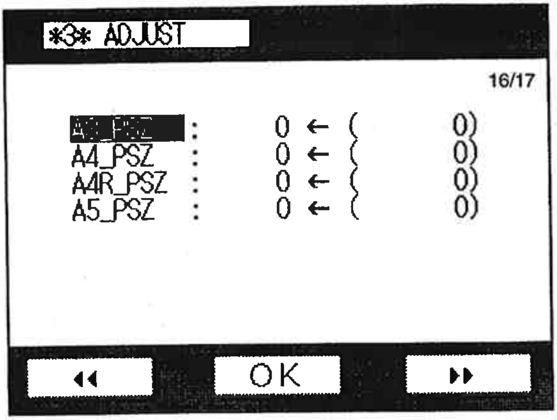
Item	Description	Settings	Remarks
11X17PSZ	Use it to fine-adjust the drive distance of the paper guide plate of the duplexing unit for each paper size. Use this mode if pick-up failure or skew movement occurs when paper is picked up from the duplexing unit in two-sided/overlay copying mode.	-10~+10	Step:0.183 mm x 2 Each step will affect both front and rear paper guides so that a signal step will result in a change of 0.367 mm. (A negative value will make the distance smaller.)
LGL_PSZ			
LTR_PSZ			



```
*3* ADJUST
                                    15/17
LTRR_PSZ :      0 ← (         0)
STMT_PSZ :      0 ← (         0)
```

Screen 3-15

Item	Description	Settings	Remarks
LTRR_PSZ	Use it to fine-adjust the drive distance of the paper guide plate of the duplexing unit for each paper size. Use this mode if pick-up failure or skew movement occurs when paper is picked up from the duplexing unit in two-sided/ overlay copying mode.	-10~+10	Step:0.183 mm x 2 Each step will affect both front and rear paper guides so that a signal step will result in a change of 0.367 mm. (A negative value will make the distance smaller.)
STMT_PSZ			



3 ADJUST

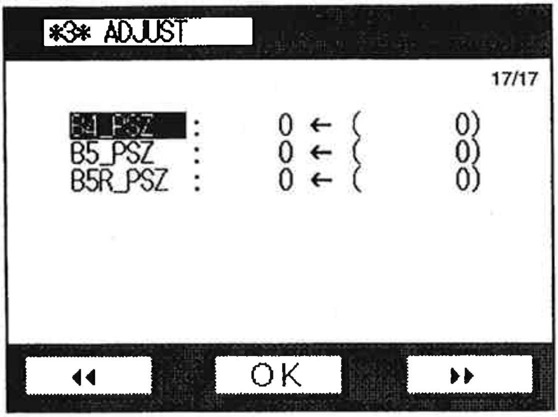
16/17

A3_PSZ : 0 ← (0)
A4_PSZ : 0 ← (0)
A4R_PSZ : 0 ← (0)
A5_PSZ : 0 ← (0)

Screen 3-16

Item	Description	Settings	Remarks
A3_PSZ	Use it to fine-adjust the drive distance of the paper guide plate of the duplexing unit for each paper size. Use this mode if pick-up failure or skew movement occurs when paper is picked up from the duplexing unit in two-sided/ overlay copying mode.	-10~+10	Step:0.183 mm x 2 Each step will affect both front and rear paper guides so that a signal step will result in a change of 0.367 mm. (A negative value will make the distance smaller.)
A4_PSZ			
A4R_PSZ			
A5_PSZ			

* A Negative value will make the distance smaller.
A single step represent a distance of 0.367 mm; since a single step will affect both front and rear, each step will result in a change of 0.183 × 2 mm.



3 ADJUST

17/17

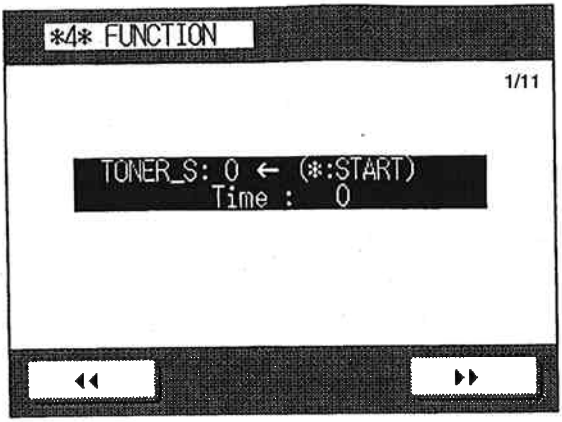
B4_PSZ : 0 ← (0)
B5_PSZ : 0 ← (0)
B5R_PSZ : 0 ← (0)

Screen 3-17

Item	Description	Settings	Remarks
B4_PSZ	Use it to fine-adjust the drive distance of the paper guide plate of the duplexing unit for each paper size. Use this mode if pick-up failure or skew movement occurs when paper is picked up from the duplexing unit in two-sided/ overlay copying mode.	-10~+10	Step:0.183 mm x 2 Each step will affect both front and rear paper guides so that a signal step will result in a change of 0.367 mm. (A negative value will make the distance smaller.)
B5_PSZ			
B5R_PSZ			

G. Function Mode (⊛4⊛)

Press the <</>> key to select the screen.
Press the item to highlight, and press the User Mode key (*) to start the operation.
Check to make sure that the machine is in standby state when executing any operations.



4 FUNCTION

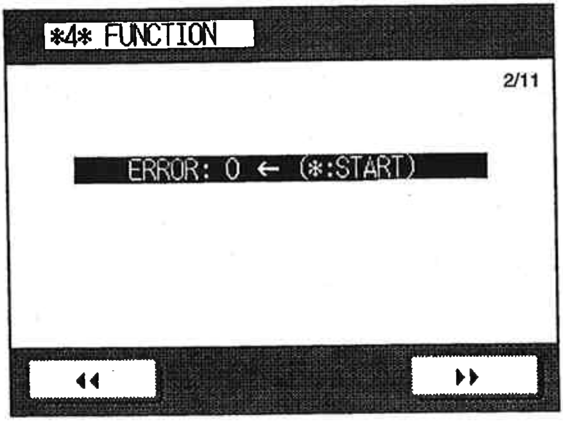
1/11

TONER_S: 0 ← (*:START)
Time : 0

Screen 4-1

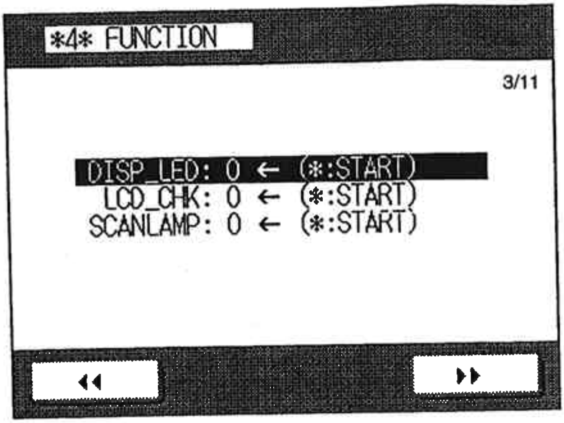
Item	Description	Remarks
TONER-S	Use it for toner supply (at time of installation). The notation indicates the supply duration in sec: normally, 7 to 9 min (420 to 540 sec). Check to make sure that the developing assembly is installed properly and locked in place; then, press the OK key to start toner supply.	The operation will stop automatically.

Note:
The message "Check the Developer" will appear in response to the first press on the ∗ key. After making sure that the developing assembly has been installed, press the OK key on the touch panel and then the ∗ key.



Screen 4-2

Item	Description	Remarks
ERROR	Use it to reset E000, E001, E002, E003, E05, E013, E020 and the jam history, error history, sorter jam, RDF jam, or alarm history. Resetting E000, however, will not rest the jam history.	



4 FUNCTION

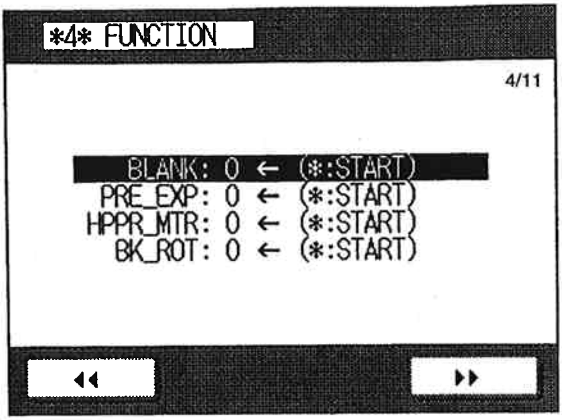
3/11

DISP_LED: 0 ← (*:START)
LCD_CHK: 0 ← (*:START)
SCANLAMP: 0 ← (*:START)

Screen 4-3

Item	Description	Remarks
DISP-LED	Use it to turn ON the LEDs on the control panel.*	
LCD-CHK	Use it to turn ON the LCD on the control panel. (The LCD back light will remain OFF for 3 sec and then return.)	
SCANLAMP	Use it to turn ON the scanning lamp. (The scanner cooling fan will also turn ON.)	The lamp will remain ON for 3 sec.

* : The Start key red LED,
The Start key green LED,
The Pre-Heat key LED,
The Interrupt key LED,
The User Mode key LED,
The Pilot Lamp LED will turn ON and OFF in sequence.



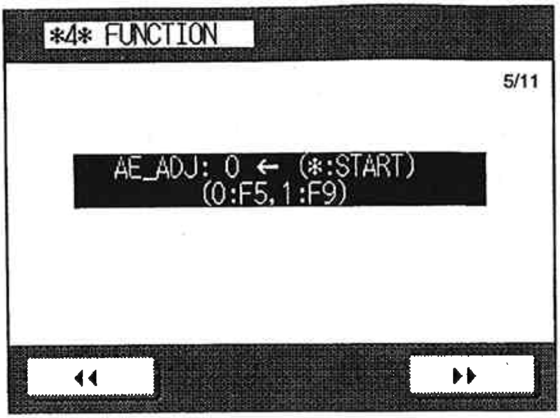
4 FUNCTION

4/11

BLANK: 0 ← (*:START)
PRE_EXP: 0 ← (*:START)
HPPR_MTR: 0 ← (*:START)
BK_ROT: 0 ← (*:START)

Screen 4-4

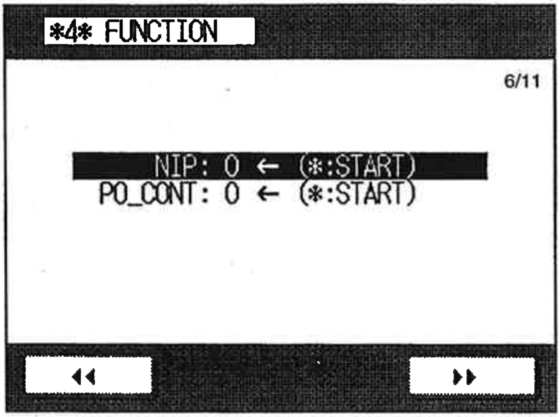
Item	Description	Remarks
BLANK	Use it to turn ON the blank exposure lamp.	The lamp will remain ON for 3 sec.
PRE-EXP	Use it to turn ON the pre-exposure LED lamp.	The lamp will remain ON for 3 sec.
HPPR-MTR	Use it to operate the hopper motor. (M10 and M11 will rotate simultaneously.)	The motor will operate for 3 sec.
BK-ROT	Use it to operate the developing cylinder.	The cylinder will operate for abut 2 min.



AE_ADJ: 0 ← (*:START)
(0:F5, 1:F9)

Screen 4-5

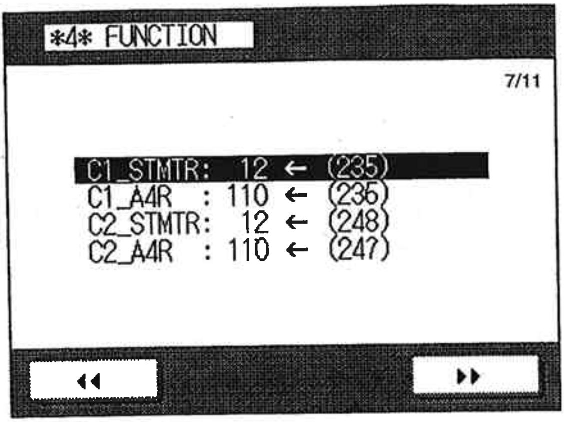
Item	Description	Remarks
AE-ADJ	Use it to specify how density measurement level automatic adjustment should be executed in AE mode: If set to 0, set F5 original. If set to 1, set F9 original.	



NIP: 0 ← (*:START)
PO_CONT: 0 ← (*:START)

Screen 4-6

Item	Description	Remarks
NIP	Use it to specify how nip automatic measurement should be executed for the fixing roller. A solid black image will be created automatically and stopped at the fixing roller; in about 20 sec, automatic discharge will occur.	See p. 2-17 of the NP6050 Service Handbook.
PO-CONT	Use it to turn ON/OFF potential control.	1:OFF 0:ON



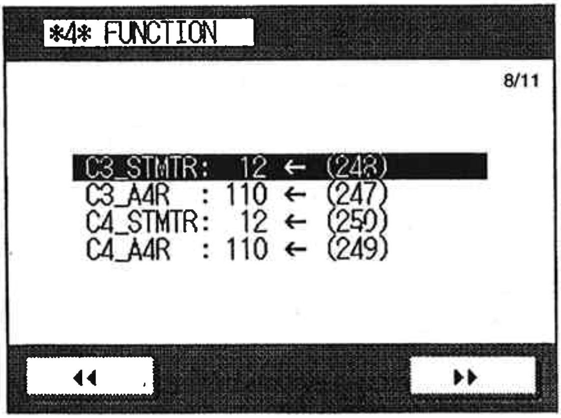
4 FUNCTION

7/11

```
C1_STMTR:  12 ← (235)
C1_A4R   : 110 ← (236)
C2_STMTR:  12 ← (248)
C2_A4R   : 110 ← (247)
```

Scren 4-7

Item	Description	Remarks
C1-STMTR		100V model only.
C1-A4R		100V model only.
C2-STMTR		100V model only.
C2-A4R		100V model only.



4 FUNCTION

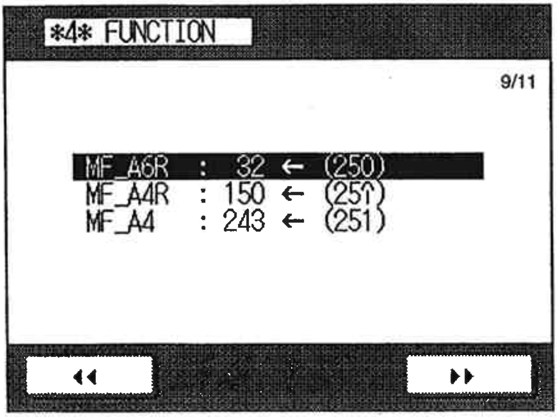
8/11

```
C3_STMTR:  12 ← (248)
C3_A4R   : 110 ← (247)
C4_STMTR:  12 ← (250)
C4_A4R   : 110 ← (249)
```

Screen 4-8

Item	Description	Remarks
C3-STMTR	Use it for automatic adjustment of paper width reference point 1 (STMTR) for cassette 3.	
C3-A4R	Use it for automatic adjustment of paper width reference point 2 (A4R) for cassette 3.	
C4-STMTR	Use it for automatic adjustment of paper width reference point 1 (STMTR) for cassette 4.	
C4-A4R	Use it for automatic adjustment of paper width reference point 2 (A4R) for cassette 4.	

* Slide out the cassette, set the paper width guide plate inside the cassette to suit the paper size, and slide in the cassette. Thereafter, select the item on the screen to read the paper width reference point.



```
9/11

MF_A6R  :  32 ← (250)
MF_A4R  : 150 ← (251)
MF_A4   : 243 ← (251)
```

Screen 4-9

Item	Description	Remarks
MF-A6R	Use it for automatic adjustment of paper width reference point 1 (A6R) for the multifeeder.	
MF-A4R	Use it for automatic adjustment of paper width reference point 2 (A4R) for the multifeeder.	
MF-A4	Use it for automatic adjustment of paper width reference point 3 (A4) for the multifeeder.	

* Slide out the cassette, set the paper width guide plate inside the cassette to suit the paper size, and slide in the cassette. Thereafter, select the item on the screen to read the paper width reference point.

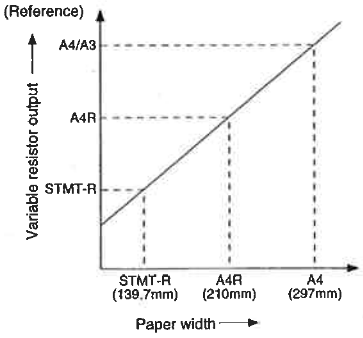
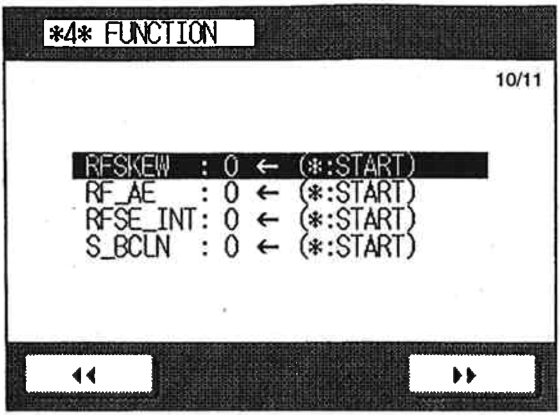


Figure 3-801

Note:

The value 'A6R' (width) is used as one of the basic values when the paper width detecting VR of the multifeeder is replaced. However, the size label does not show "A6R," and the width guide will not click into position.

As a guide, keep in mind that A6R is the result of A4 paper folded into four with the width being 105 mm.



4 FUNCTION

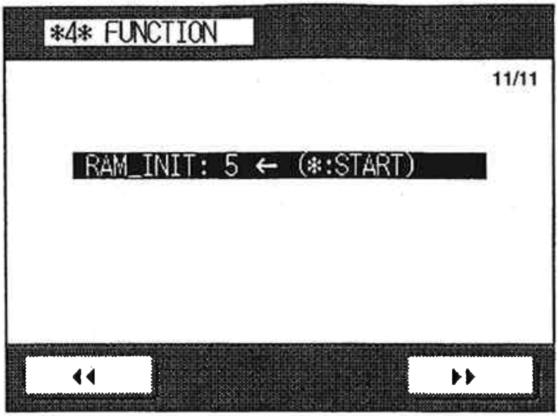
10/11

```
RFSKEW   : 0 ← (*:START)
RF_AE    : 0 ← (*:START)
RFSE_INT : 0 ← (*:START)
S_BCLN   : 0 ← (*:START)
```

Screen 4-10

Item	Description	Remarks
RFSKEW	Use it to correct skew movement in the RDF.	
RF-AE	Use for automatic adjustment of the RF AE sensor.	
RFSE-INT	Use it to initialize the RDF sensor.	*
S-BCLN	Use it to clean the RDF separation belt.	

* : Executing 'START' will keep the indication on the screen '0'. Refer to LEDs 1, 2, and 3 of the RDF controller PCB (flash in sequence or simultaneously) .



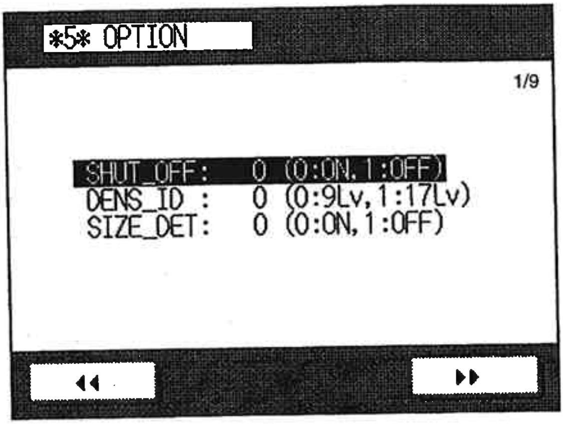
RAM_INIT: 5 ← (*:START)

Screen 4-11

Item	Description	Remarks
RAM-INIT	Use it to initialize the RAM on the DC controller PCB.	After initialization, the Copy Start screen will appear.

H. Options Mode (*5*)

Press the <</>> key to select the screen.
Press the item to highlight; then, enter the appropriate value on the keypad.
Use user mode to set/re-set each mode.



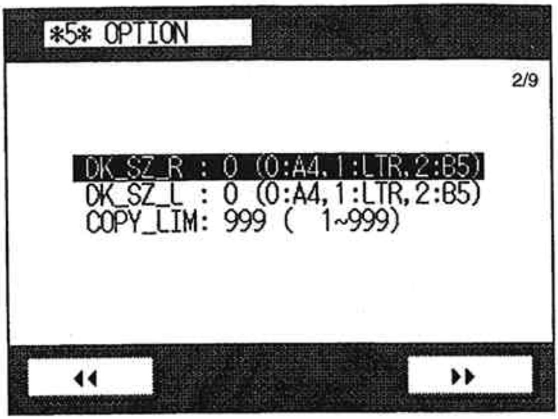
5 OPTION

1/9

```
SHUT_OFF:   0 (0:ON,1:OFF)
DENS_ID :   0 (0:9Lv,1:17Lv)
SIZE_DET:   0 (0:ON,1:OFF)
```

Screen 5-1

Item	Description	Remarks
SHUT-OFF	Use it to turn ON/OFF the auto shut-off function.	1:OFF 0:ON
DENS-ID	Use it to switch copy density notation.	0:9-step 1:17-step
SIZE-DET	Use it to turn ON/OFF the size detection function.	1:OFF 0:ON



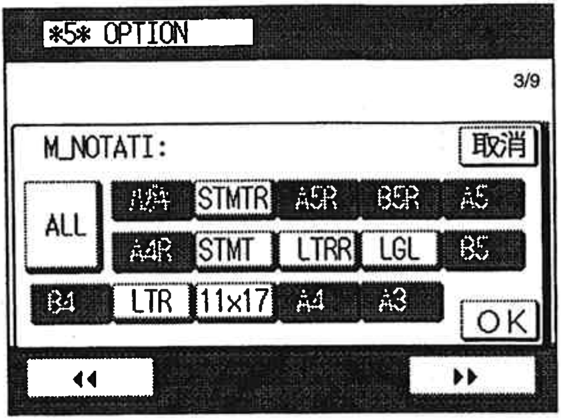
5 OPTION

2/9

```
DK_SZ_R : 0 (0:A4,1:LTR,2:B5)
DK_SZ_L : 0 (0:A4,1:LTR,2:B5)
COPY_LIM: 999 (  1~999)
```

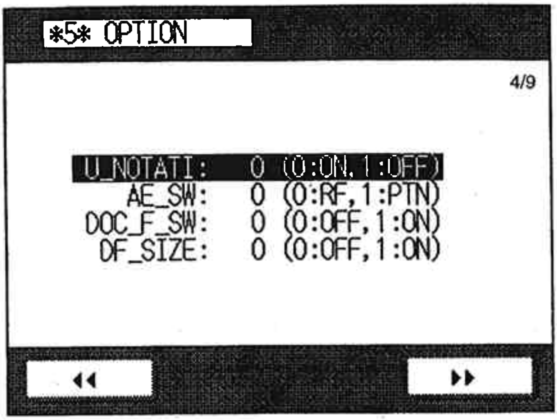
Screen 5-2

Item	Description	Remarks
DK-SZ-R	Use it to switch the paper sizes for the right deck.	0:A4 1:LTR 2:B5
DK-SZ-L	Use it to switch the paper size for the left deck.	0:A4 1:LTR 2:B5
COPY-LIM	Use it to set the copy count upper limit. (May be any number between 1and 999.)	
CALL-SW	1.You may use any available area within the current mode memory. 2.Use 'OPTION CALL SW' in service mode (*5*) 0 :Disable call function. (All will be used for mode memory.) 1~9:Enable call for the settings (copying modes). The initial value is '0' and may be set to between '1' and '9'. 3.A call function may be recalled in the same way a mode memory is recalled. 4.The settings will be stored in response to a normal copy start (not after jam, alarm, interrupt, suspension). For instance, if the setting is '3', mode memory 7:most recent copying mode mode memory 8:second most recent copying mode counting from memory 7 mode memory 9:second most recent copying mode counting from memory 8 mode memory 1~6:functions as normal mode memory	


5 OPTION
3/9
M_NOTATI:
取消
ALL
STMTR
A5R
B5R
A5
A4R
STMT
LTRR
LGL
B5
B4
LTR
11x17
A4
A3
OK
◀◀
▶▶

Screen 5-3

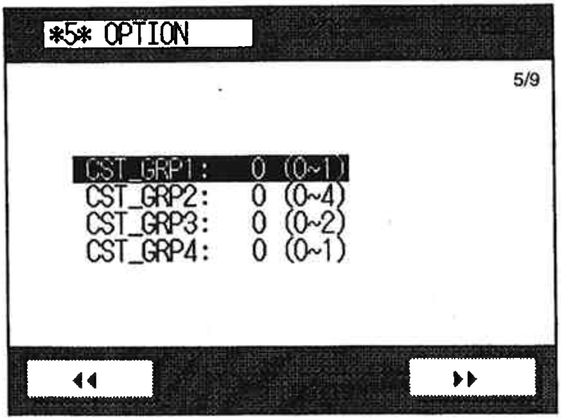
Item	Description	Remarks
M-NOTATI	Use it to change the available paper size listing of the multifeeder.	



U_NOTATI: 0 (0:ON, 1:OFF)
AE_SW: 0 (0:RF, 1:PTN)
DOC_F_SW: 0 (0:OFF, 1:ON)
DF_SIZE: 0 (0:OFF, 1:ON)

Screen 5-4

Item	Description	Remarks
U-NOTATI	Use it to switch the notation for universal size papers: 0:indicates U1, U2, U3, U5 1:indicates the size selected under 'CST-GRP'	
AE-SW	Use it to specify whether to use the RDF's AE or the copier's AE. (Normally, the RDF's AE will be used whenever the RDF is used; select the copier's AE if the RDF's AE fails for some reason.) Note that slide reading will not be available when the RDF's AE is not used.	1:Copier 0:RDF
DOC-F-SW	Use it to enable/disable stream reading.	0:Enable 1:Disable
DF-SIZE	Use it to specify auto paper selection for a stack of mixed AB- and Inch-configuration papers. Enable it according to the model used; detection will occur, for instance, when A4 and LTR paper are used at the same time.	0:Enable detection 1:Disable detection



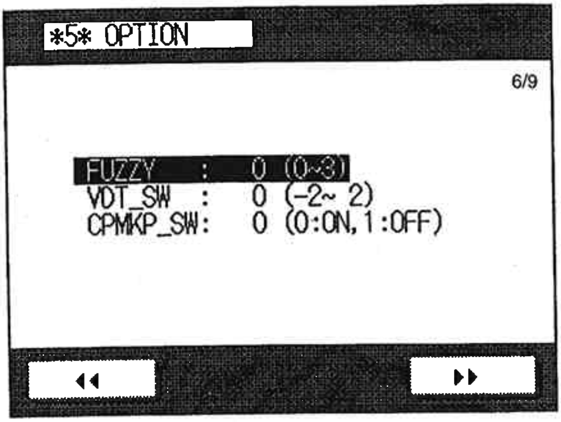
5 OPTION

5/9

CST_GRP1: 0 (0~1)
CST_GRP2: 0 (0~4)
CST_GRP3: 0 (0~2)
CST_GRP4: 0 (0~1)

Screen 5-5

Item	Description	Remarks
CST-GRP1	Use it to select the type of notation when 'U-NOTATI' for universal size paper is set to '1'. 0:G LTR (indicated as LTR) 1:K LGL (indicated as U)	
CST-GRP2	Use it to select the type of notation when 'U-NOTATI' for universal size paper is set to 1'. 0:FLSC (indicated as FLSC) 1:OFI (indicated as OFI) 2:E-OFI (indicated as OFI) 3:A-LGL (indicated as LGL) 4:S-OFI (Indicated as OFI)	
CST-GRP3	Use it to select the type of notation when 'U-NOTATI' for universal size paper is set to '1'. 0:G LGL (indicated as LGL) 1:FOLI (indicated as FOLI) 2:A FLS (indicated as FLSC)	
CST-GRP4	Use it to select the type of notation when 'U-NOTATI' for universal size paper is set to '1'. 0:LTR (indicated as LTR) 1:A LTR (indicated as LTR)	

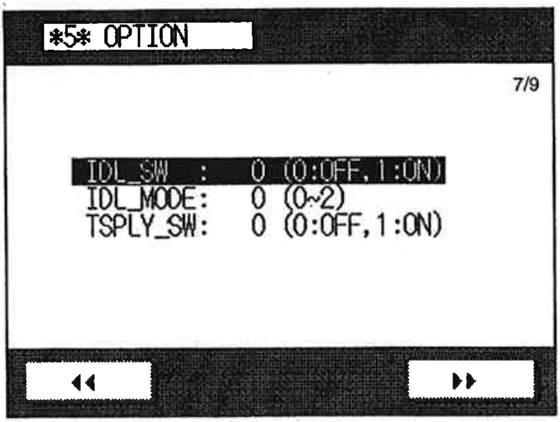

5 OPTION

6/9

FUZZY : 0 (0~3)
VDT_SW : 0 (-2~ 2)
CPMKP_SW: 0 (0:ON,1:OFF)

Screen 5-6

Item	Description	Remarks
FUZZY	Use it for controlling (fuzzy) the current applied to the pre-transfer, transfer, and separation charging assemblies according to the ambient temperature. You may disable control and opt for one of three environment settings.	0:Fuzzy control ON 1:If the image is light under low humidity condition 2:If the humidity condition is normal 3:If copy paper comes into contact with the cleaner separation claw under high humidity condition Select '0', '1', '2', or '3' on the keypad, and press the * key.
VDT-SW	Use it to switch the dark area target potential (VDT) for potential control if the solid areas of copy images are too light.	-2:for lighter images -1:for somewhat lighter images 0:default +1:for somewhat darker images +2:for darker images
CPMKP-SW	Use it to turn ON/OFF the special sequence in which the copying sped is decreased to maintain fixing of copy images in a low-temperature environment.	0:ON 1:OFF



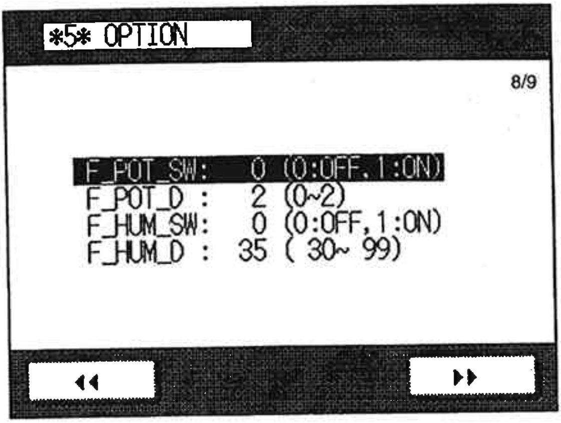
5 OPTION

7/9

```
IDL_SW   :  0 (0:OFF,1:ON)
IDL_MODE:   0 (0~2)
TSPLY_SW:   0 (0:OFF,1:ON)
```

Screen 5-7

Item	Description	Remarks
IDL-SW	Use it to turn ON/OFF the drum idle rotation mode to prevent distortion of images under high-humidity conditions or light images at time of power-on (e.g., in the morning).	0:OFF (no idle rotation) 1:ON (control by IDL-MODE setting)
IDL-MODE	Use it to switch the idle rotation mode when the power switch is turned ON with the surface temperature of the fixing roller 75$_{\circ}$C or less. If the humidity increases at times and causes image faults, select '1' or '2' even in a normal operating environment.	0:automatic control using humidity sensor data 1:idle rotation for 2 min 2:idle rotation for 5 min
TSPLY-SW	Use it to switch toner supply in reference to the humidity sensor. Normally, the setting is used to affect the rotation of the hopper motor in normal copying; if the humidity is too high, the time for each rotation is increased to prevent caking of toner.	0:control toner supply motor using humidity data Medium to low humidity: ON for 2 sec OFF for 1 sec High humidity: ON for 4 sec OFF for 2 sec 1:toner supply motor ON for 2 sec and OFF for 1 sec



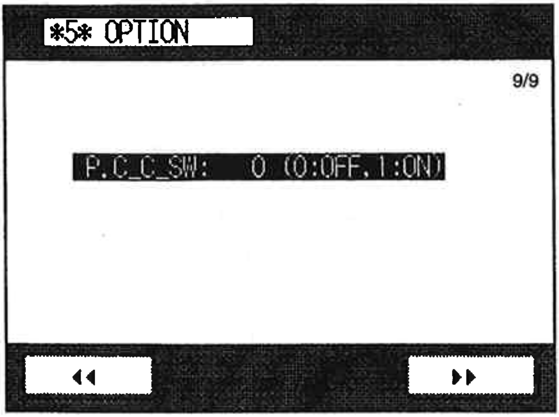
5 OPTION

8/9

F_POT_SW: 0 (0:OFF,1:ON)
F_POT_D :   2 (0~2)
F_HUM_SW: 0 (0:OFF,1:ON)
F_HUM_D : 35 (30~ 99)

Screen 5-8

Item	Description	Remarks
F-POT-SW	Enter '1' if transfer separation faults occur because of an error (faulty) in the potential sensor. Use it as a tentative remedy until replacing the potential sensor.	
F-POT-D	Use it when changing the setting 'F-POT-SSW' (0 →1). 0:If the user uses text-oriented originals. 1:If the user uses photo-oriented originals. 2:If re-transfer (white spots at points 50 mm around the leading edge) occurs. The degree of separation current is in the order of 0 > 1 > 2.	
F-HUM-SW	Enter '1' if an error (fault) is found in the environment sensor (hereby automatically fixing the setting of 'F-HUM-D' to 35%). Use it as a tentative remedy until replacing the environment sensor.	
F-HUM-D	Enter an approximate humidity value of the site of installation; between 30% and 99%.	Factory default : 35



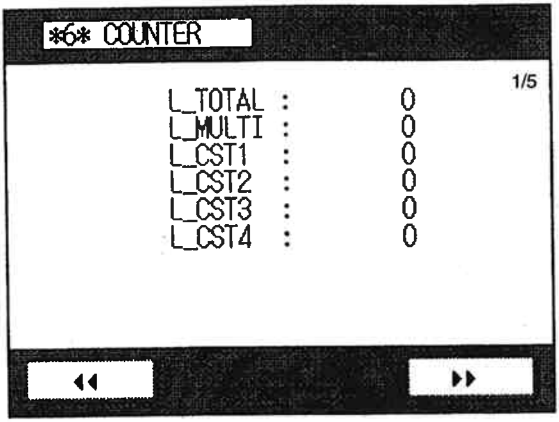
P.C_C_SW: 0 (0:OFF, 1:ON)

Screen 5-9

Item	Description	Remarks
SCAN_SEL	Use it to turn ON/OFF the original size detection function for RDF non-default original sizes. ON:So that an assumed original size will be used if the size of an original is not one of the defaults for such modes as require identification of original size (APS, AMS, frame erasing).	0: OFF 1: ON
2SIDE_SL	Use it to select two-sided mode (one-sided to two-sided) as standard copying mode. (If '0' is selected, you must initialize the standard mode in user mode for the notation 'two-sided' to appear.)	0: OFF 1: ON

I. Counter Mode ($\boxed{*}\boxed{6}\boxed{*}$)

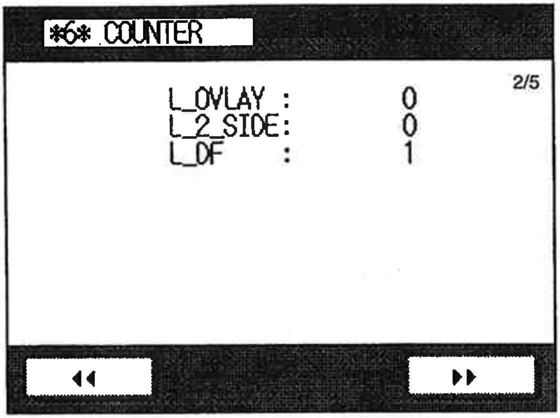
- Press the <</>> key to select the screen.
- Press the item to highlight; then, depressing the service switch while the screen is on the display, press the C key on the control panel to reset the counter reading to '00000000'.



```
*6* COUNTER
                                   1/5
        L_TOTAL  :        0
        L_MULTI  :        0
        L_CST1   :        0
        L_CST2   :        0
        L_CST3   :        0
        L_CST4   :        0
```

Screen 6-1

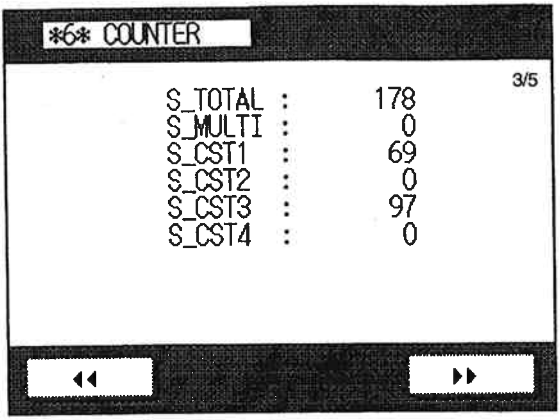
Item	Description	Remarks
L-TOTAL	Use it for the large-size total copy counter. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-MULTI	Use it for the large-sized multifeeder copy counter. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-CST1	Use it so that copies from the paper deck will not be counted but copies from the large-size cassette 1 will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-CST2	Use it so that copies from the paper deck will not be counted but copies from the large-size cassette 2 will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-CST3	Use it so that copies from the large-size cassette 3 will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-CST4	Use it so that copies from the large-size cassette 4 will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.



```
*6* COUNTER
                                  2/5
        L_OVLAY :       0
        L_2_SIDE:       0
        L_DF    :       1
```

Screen 6-2

Item	Description	Remarks
L-OVERLAY	Use it so that the 2nd sides of large-size overlay copies will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-2-SIDE	Use it so that the 2nd sides of large-size two-side copies will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.
L-DF	Use it so that large-size originals will be counted. (paper length 300 mm or more or non-default size)	Returns to '00000000' after '99999999'.



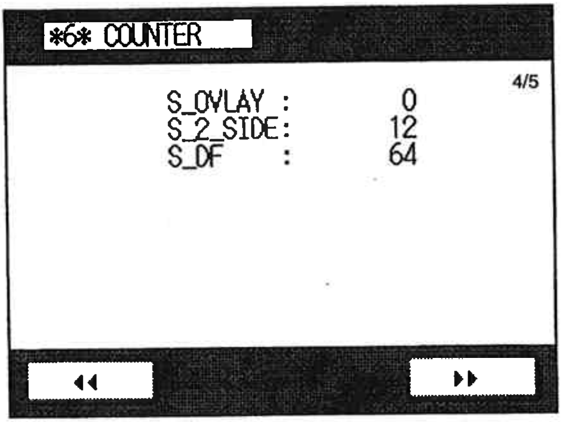
6 COUNTER

3/5

```
S_TOTAL  :    178
S_MULTI  :      0
S_CST1   :     69
S_CST2   :      0
S_CST3   :     97
S_CST4   :      0
```

Screen 6-3

Item	Description	Remarks
S-TOTAL	Small-size total copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-MULTI	Small-size multifeeder copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-CST1	Small-size cassette 1/right pick-up copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-CST2	Small-size cassette 2/right pick-up copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-CST3	Small-size cassette 3 pick-up copy counter (paper length 300 or less)	Returns to '00000000' after '99999999'.



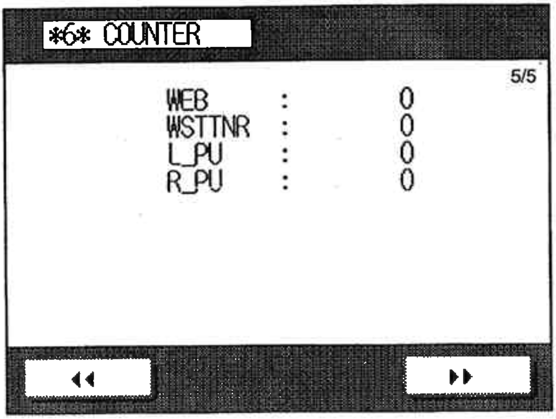
6 COUNTER

4/5

S_OVLAY : 0
S_2_SIDE: 12
S_DF : 64

Screen 6-4

Item	Description	Remarks
S-OVERLAY	Small-size overlay 2nd side copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-2-SIDE	Small-size 2nd side 2-sided copy counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.
S-DF	Small size original counter (paper length 300 mm or less)	Returns to '00000000' after '99999999'.



WEB : 0
WSTTNR : 0
L_PU : 0
R_PU : 0

Screen 6-5

Item	Description	Remarks
WEB	Copy counter after replacement of the fixing cleaning belt (An alarm will be issued at the start of service mode after making 250,000 copies.)	Returns to '00000000' after '99999999'.
WSTTNR	Copy counter after disposal of the waste toner from the waste toner case (An alarm will be issued at the start of service mode after making 250,000 copies.)	Returns to '00000000' after '99999999'.
L_PU∗	RDF left pick-up counter	Returns to '00000000' after '99999999'.
R_PU∗	RDF right pick-up counter	Returns to '00000000' after '99999999'.

∗ In view of such durables as requiring replacement by pick-up source (e.g., RDF separation pad).

Incrementing the Counter Reading

① TOTAL

- For the 1st side of overlay/2-sided copies, when paper is stacked on the holding tray.
- For one-sided copies and the 2nd side of overlay/2-sided copies, when the paper is discharged outside the machine. (If a sorter is installed, when the paper is discharged to the sorter bin.)

② OVERLAY, 2_SIDE

- When the paper (overlay/2-sided copy) is discharged outside the machine.

③ MULTI, CST

- When the copy paper picked up from each of these sources is discharged outside the machine.
- For the 1st side of an overlay/2-sided copy, when the paper is stacked on the holding tray.

④ RDF

- When the size of the original is identified after picking it up in the RDF.

IX. SELF DIAGNOSIS

The microprocessor of the machine's DC controller is equipped with a function that checks the condition of the machine (particularly the condition of its sensors); it will indicate an error code on the control panel upon detection of an error.

A. Copier

Code	Cause	Description
E000	• Thermistor (TH1; poor contact, open circuit) • Fixing heater (H1, H2; open circuit) • Thermistor (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature of the upper fixing roller does not reach 70°C within 3 min 30 sec after power-on.
E001	• Thermistor (TH1; short circuit) • SSR (faulty) • DC controller PCB (faulty))	• The temperature of the upper fixing roller exceeds 230°C for 2 sec or more.
E002	• Thermistor (TH1; poor contact, open circuit) • Fixing heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature of the upper fixing roller does not reach 100°C within 2 min after it has exceeded 70°C. • The temperature of the upper fixing roller does not reach 150°C within 2 min after it has exceeded 100°C.
E003	• Thermistor (TH1; poor contact, open circuit) • Fixing heater (H1, H2; open circuit) • SSR (faulty) • DC controller PCB	• The temperature of the upper fixing roller is 70°C or less for 2 sec or more after it has reached 100°C.
E004	• SSR (faulty) • DC controller PCB (faulty)	• An open circuit is detected in the SSR used to drive the fixing heater.
E005	• Cleaning belt (fixing assembly; taken up) • Cleaning belt sensor (PS11; faulty) • DC controller PCB (faulty)	• The take-up length of the cleaning belt inside the fixing assembly exceeds a specific value.
E006	• Connector (fixing assembly rear; poor contact) • DC controller PCB (faulty)	• The fixing feeding assembly has become displaced during copying operation.

Code	Cause	Description
E010	• Main motor (M1; faulty) • DC controller PCB (faulty)	• Clock pulses (2 or more) are not generated within 1 sec after the main motor drive signal has been generated.
E013	• Waste toner feeding screw (faulty) • DC controller PCB (faulty)	• The waste toner feeding screw cannot rotate, and the detecting switch (MSW4) has been pressed a multiple number of times within a specific period of time.
E015	• Pick-up motor (M2; faulty) • DC controller PCB (faulty)	• Clock pulses (2 or more) are not generated within 1 sec after the pick-up motor drive signal has been generated.
E020	• Hopper motor (M10, M11; faulty) • Developing assembly toner level detection circuit (faulty) • Hopper toner level detection circuit (faulty) • DC controller PCB (faulty) • Hopper connector (not connected)	• The toner supply signal remains '0' (toner absent) for 2 min or more during copying operation. • The toner supply signal does not go '1' in 10 min when toner supply sequence is initiated at time of installation.
E030	• Total copy counter (open circuit) • DC controller PCB (faulty)	• An open circuit is detected in the total copy counter when the toner copy counter drive is OFF.
E031	• Option counter (open circuit) • DC controller PCB (faulty) • Vertical path drive electromagnetic clutch (C215; open circuit in harness)	• An open circuit is detected in the option counter when the option counter drive is OFF.
E050	• Holding tray X home position sensor (PS21; faulty) • Holding tray X motor (M8; faulty) • DC controller PCB (faulty)	• The holding tray X home position signal (HTXHP) is not generated within 4 sec when the holding tray X motor (M8) drive signal is being generated. • The holding tray X home position signal (HTXHP) is generated for 2 sec or more when the holding tray X motor (M8) drive signal is being generated.
E051	• Holding tray Y home position sensor (PS20; faulty) • Holding tray Y motor (M9; faulty) • DC controller PCB (faulty)	• The holding tray Y home position signal (HTYHP) is not generated within 4 sec when the holding tray Y motor (M9) drive signal is being generated. • The holding tray Y home position signal (HTYHP) is generated for 2 sec or more when the holding tray Y motor (M9) drive signal is being generated.

Code	Cause	Description
E203	• Scanner home position sensor (PS1; faulty) • DC controller PCB (faulty)	• The scanner home position signal (SCHP) is generated for 0.5 sec or more when the scanner motor (M3) drive signal is being generated.
(E202) No code indication; keys are locked; Note 2.	• Scanner motor (M3; faulty) • Scanner home position sensor (PS1; faulty) • DC controller PCB (faulty)	• The scanner home position signal (SCHP) is not generated within 10 sec after the power switch or the Copy Start key has been turned ON.
(E204) No code indication; keys are locked; Note 2.	• Scanner motor (M3; faulty) • Scanner original leading edge sensor (PS3, PS4; faulty) • DC controller PCB (faulty)	• The scanner leading edge signal (SCDP1) is not generated within 0.8 sec after the scanner starts to move forward. • The scanner leading edge signal (SCDP2) is not generated within 1.0 sec after the scanner starts to move forward.
E210	• Lens X home position sensor (PS6; faulty) • Lens X motor (M4; faulty) • DC controller PCB (faulty)	• The lens X home position signal (LXHP) is not generated within 9 sec after the power switch or the Copy Start key has been pressed. • The lens X home position signal (LXHP) is generated for 2 sec or more.
E212	• Lens Y home position sensor (PS7; faulty) • Lens Y motor (M5; faulty) • DC controller PCB (faulty)	• The lens Y home position signal (LYHP) is not generated within 9 sec after the power switch or the Copy Start key is pressed. • The lens Y home position signal (LYHP) is generated for 2 sec or more.
E213	• Scanner lock sensor (PS48; faulty) • Scanner locking solenoid (SL1; faulty) • DC controller PCB (faulty)	• The scanner lock sensor signal (SCLK) is not generated within a specific period of time after scanner locking is initiated in stream reading mode. • The scanner doe not stop at the scanner original leading edge 2 sensor (PS4).
E220	• Lamp regulator (faulty) • PC controller PCB (faulty)	• The scanning lamp turns ON during standby. • The scanning lamp turns OFF during copying. • The lamp ON detection signal (CVRON) is generated even when the scanning lamp ON signal (LAON) is '0'.
E240	• DC controller PCB (faulty)	• An error has occurred in the communication between the master (Q156) and the slave (Q140) in the microprocessor on the DC controller PCB.
E243	• DC controller PCB (faulty) • Control panel PCB (faulty)	• An error has occurred in the communication between the master (Q156) on the microprocessor on the DC controller PCB and the slave (Q140) in the microprocessor on the control panel PCB.

Code	Cause	Description
E710	• DC controller PCB (faulty)	• The RAM (Q136, Q137, Q138, Q162) on the DC controller PCB cannot be initialized at power-on.
E711	• DC controller PCB (faulty)	• The RAM (Q136, Q137, Q138, Q162) on the DC controller PCB goes out of order after power-on.
E712	• RDF controller PCB (faulty) • Connector (poor contact) • 24V power supply (faulty)	• The communication IC on the RDF controller PCB goes out of order.
E713	• Sorter controller PCB (faulty) • Connector (poor contact) • 24V power supply (faulty)	• The communication IC on the sorter controller PC goes out of order.
E800	• Auto power-off circuit (open circuit) • DC controller PCB (faulty)	• An open circuit is detected in the auto power-off circuit. • The auto power-off signal has occurred twice or more within 2 sec.

Caution:

1. When the self diagnosis function has turned ON, you can reset the machine by turning its power switch OFF once.
   E000, E001, E002, E003, E004, E005, E013, or E020 is not reset by turning OFF the power switch; this is to prevent the user from casually resetting the machine when the thermistor has an open circuit, since such would overheat and damage the fixing roller and would cause overflowing of toner from the hopper.
   To clear E00, E001, E002, E003, E004, E005, E013 or E020, you must clear the data in the RAM on the DC controller PCB as follows:
   1) Start service mode (✱4✱).
   2) Press the ⏪/⏩ key to select 'ERROR'.
   3) Press the OK key to clear the E code.
   4) The message display on the control panel will be refreshed, and the copy mode screen will return.
2. E015, E202, or E204 may be checked under 'B-ERR1', 'B-ERR2', or 'B-ERR3' in service mode (✱1✱).

B. RDF Self Diagnosis

Code	Cause	Description
E400	• Data communication (with copier; faulty)	• An interruption is detected for 5 sec or more. (The communication is monitored at all times.)
E401	• Pick-upper roller sensor (S8, S21; faulty) • Pick-up motor (M1; faulty) • Pick-up clutch (CL1; faulty)	• Initialization does not end in 2 sec (i.e., for the D-cut roller, the flat surface should be at the top and home position).
E402	• Belt motor clock sensor (S11; faulty) • Belt motor (M3; faulty)	• The belt motor clock pulses within 100 msec are less than specified.
E403	• Reversing motor clock sensor (S10; faulty) • Reversing motor (M2; faulty)	• The reversing clock pulses within 100 msec are less than specified.
E404	• Delivery motor clock sensor (S12; faulty) • Delivery motor (M5; faulty)	• The delivery motor clock pulses within 200 msec are less than specified.
E405	• Pick-up motor clock sensor (S9; faulty) • Pick-up motor (M1; faulty)	• The pick-up motor clock pulses within 200 msec are less than specified.
E406	• Original stopper motor (M7; faulty) • Stopper home position sensor (S26; faulty) • Motor (faulty) • Tray rear sensor (poor detection ability)	• The shift of the guide plate by the original stopper motor does not end within a specific period of time. • The sensor output does not change after driving the original stopper motor for 2 sec or more.
E407	• Original tray ascent motor (M6; faulty) • Tray position sensor (S25; faulty	• The shift of the tray by the original tray ascent motor does not end within a specific period of time.
E408	• Feeding motor clock sensor (S22; faulty) • Feeding motor (M8; faulty)	• The feeding motor clock pulses within 100 msec are less than specified.
E411	• Registration sensor (S3; faulty) • Skew sensor 1 (S4; faulty) • Manual feed registration sensor (S19; faulty) • Image leading edge sensor 1 (S20; faulty) • Original sensor 1 (S1; faulty) • Original sensor 2 (S27; faulty)	• The sensor output is 2.3 V or more in the absence of paper.

Note:

When the self diagnosis mechanism has turned on, turn off and then on the power switch to reset.

You may continue to make copies even when the RDF has gone out of order; simply disconnect the lattice connector from the RDF, open the RDF, and place the original on the copyboard glass.

C. Sorter Self Diagnosis

Code	Cause	Description
E500	• CPU or communication IC (Q1 or Q3; sorter controller)	• An error has occurred in the communication between the sorter and the copier.
E510	• Feeding motor (M1; fails to rotate) • Feeding guide up/down mechanism (e.g., interference)	• The lock signal from the motor is off for 250 msec or more.
E522	• Push bar motor (M7; fails to rotate)	• The operation does not end within 2 sec after the motor drive signal has been generated.
E523	• Reference wall motor (M6; fails to rotate)	• The operation does not end within 2 sec after the motor drive signal has been generated.
E524	• Multiguide motor (M5; fails to operate)	• The operation does not end within 2 sec after the motor drive signal has been generated.
E525	• Bin paper sensor automatic adjustment (faulty)	• Automatic adjustment of the bin paper sensor cannot be executed; or, there is an error in the adjustment value.
E526	• Bin paper sensor (S6, S7) automatic adjustment (faulty)	• Automatic adjustment of the bin paper sensor 1 (S6, S7) cannot be executed; or, there is an error in the adjustment value.
E530	• Guide bar drive motor (M8; fails to rotate)	• The motor does not stop operation within a specific period of time after the motor drive signal has been generated: 5 sec if in front retrieval mode, 2 sec otherwise.
E531	• Stapler unit drive motor (M4; fails to rotate)	• The motor does not stop to operate within 2 sec after the motor drive signal has been generated. • The clock signal is absent from the clock sensor (PI8) of the motor within 250 msec or more. • The input signal from the drive home position sensor (PI9) remains unchanged for 1 sec or more.
E532	• Stapler unit drive motor (M3; faulty)	• The motor doe not end operation within a specific period of time after the motor drive signal has been generated.

CHAPTER 4

MECHANICAL SYSTEM

1. ⚠ Disconnect the power cord for safety before disassembly or reassembly work.
2. Group the screws by type (length and diameter) and location.
3. The fixing screw for the grounding wire and varistors is fitted with a washer to ensure electric continuity; be sure to use the washer for reassembly.
4. If possible, avoid operating the machine with any of its parts removed.
5. Unless otherwise noted, reassembly is the reverse of disassembly.

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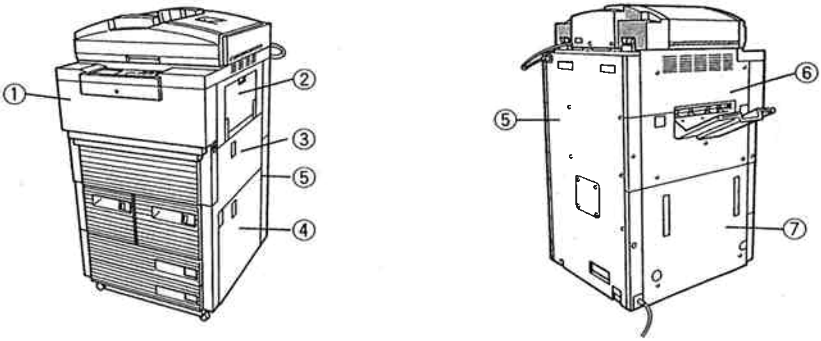
I. EXTERNALS

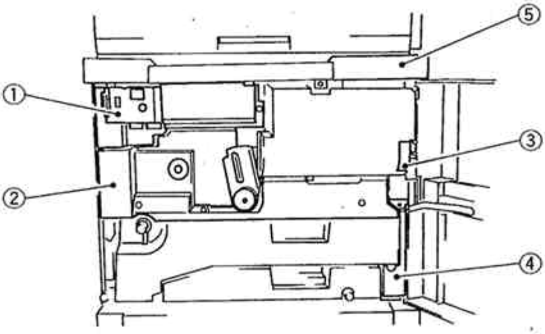
A. External Covers



① Front door
② Multifeeder door
③ Upper right door (4)
④ Lower right door (2)

⑤ Lower right cover (1)
⑥ Rear cover (4)
⑦ Upper left cover (5)
⑧ Lower left cover (7)

Figure 4-101



① Upper inside cover (2)
② Fixing/feeding assembly front cover (3)
③ Connector cover (1)

④ Power switch assembly cover (3)
⑤ Hopper cover

Figure 4-102

Remove the covers as necessary to clean, inspect, or repair the inside of the machine.

Those covers that may be removed through mere removal of mounting screws on their own are omitted from the discussions.

1. Removing the Front Door

1) Open the front door, and remove the mounting screw ② of the stopper tape ①; then, remove the two stoppers.

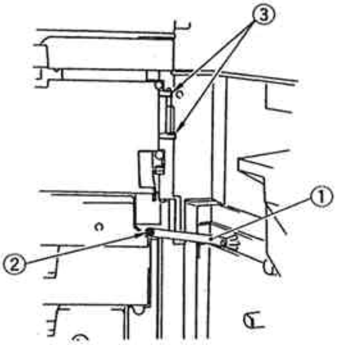


Figure 4-103

2) Pull out the pin ④ in downward direction.

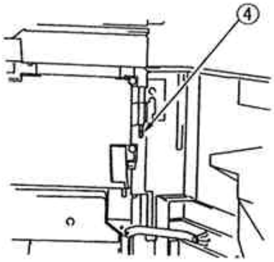


Figure 4-104

3) Hold the front door ⑤, and pull it out in upward direction at an angle.

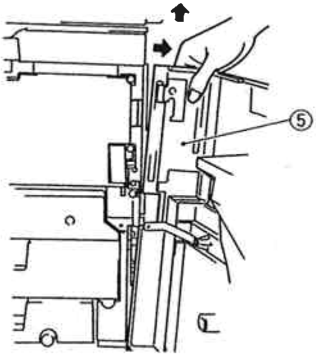


Figure 4-105

2. Removing the Inside Upper Cover

1) Remove the front door, and shift the fixing/feeding lever; then, slide out the fixing/feeding unit.
2) Remove the three mounting screws ①, and remove the inside upper cover ②.

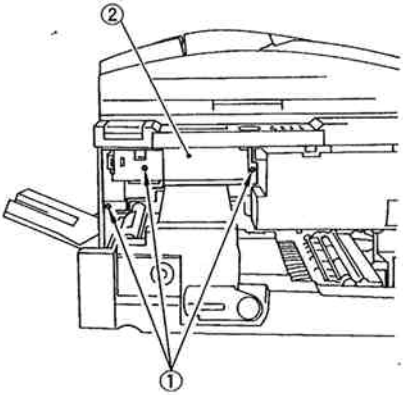


Figure 4-106

3. Removing the Fixing/Feeding Unit Front Cover

1) Open the front door, and slide out the fixing/feeding unit.
2) Remove the mounting screw ①, and remove the fixing knob ②.
3) Remove the three mounting screws ③, and remove the fixing/feeding assembly front cover ④.

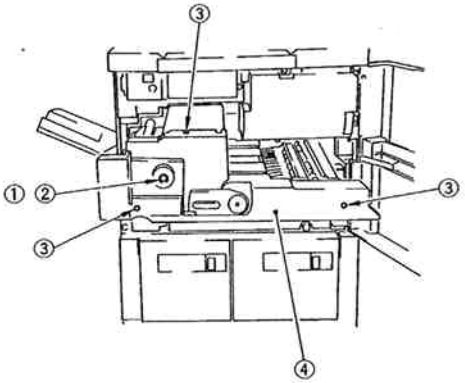


Figure 4-107

4. Removing the Rear Cover

1) Remove the nine screws ①, and remove the rear cover ②.

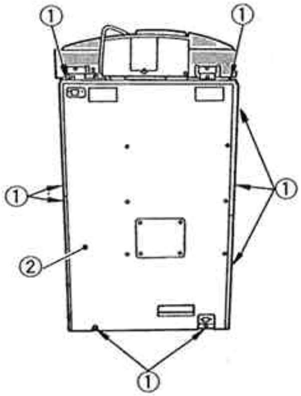


Figure 4-108

5. Sliding Out the Hopper Assembly

1) Open the front door, and open the hopper cover ①. Remove the three mounting screws ② and the connector cover ③, and disconnect the connector; then, slide the hopper ④ to the front, and turn it.

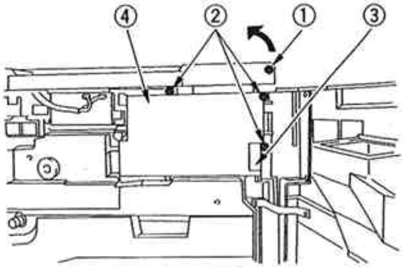


Figure 4-109

Caution:
When installing the hopper assembly, be sure to check that the connector is connected.

6. Removing the Process Unit

1) Open the front door.
2) Remove the developing assembly. (See p. 4-80.)
3) Remove the hopper assembly. (See p. 4-83.)
4) Slide out the fixing feeding assembly, and place the drum protection sheet on the registration roller assembly.

5) Disconnect the four connectors ①, and remove the two mounting screws ②.

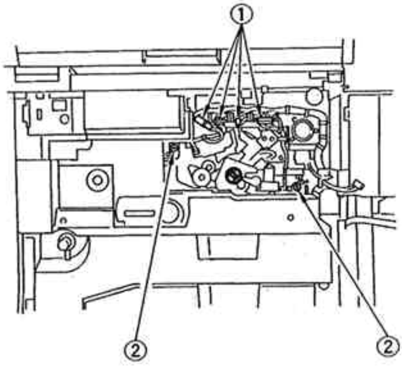


Figure 4-110

6) Insert the drum rotating tool ③ into the slit ④ in the drum shaft. While keeping the drum in place so that it will not rotate in counterclockwise direction, insert a screwdriver through the center hole ⑤ of the drum rotating tool; then, remove the drum fixing screw.

Caution:

Do not remove the drum fixing screw before fixing the drum in place. If the drum is allowed to rotate in counterclockwise direction, the cleaning blade will not come into contact with the drum correctly, leading to cleaning faults.

Reference:

If you are releasing the hopper assembly but not removing it, be sure to open the multifeeder door and the upper right door to allow for space for the front door.

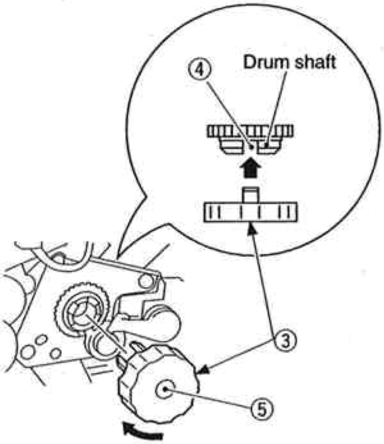


Figure 4-110a

7) Slide out the process unit ⑥ until it stops.

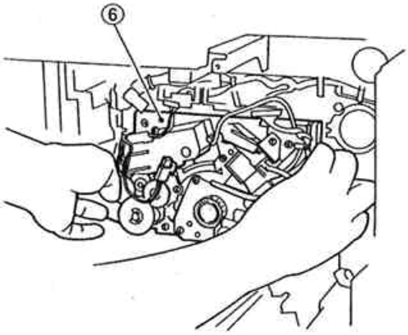


Figure 4-111

8) Hold the grip of the process unit as shown, and remove it.

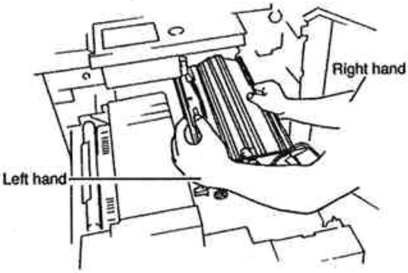


Figure 4-112

7. Installing the Process Unit

Install the process unit by reversing the steps used to remove it while keeping the following in mind:

1) Place the process unit while aligning it along the front and rear guide plates ① of the left rail.
   For the right rail, be sure to place the process unit on the L-shaped stay.

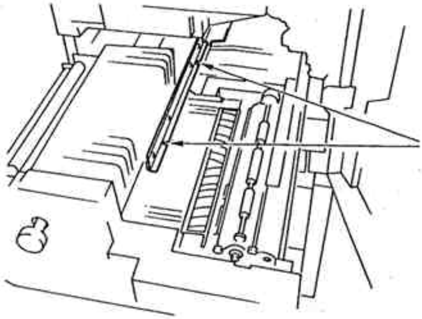


Figure 4-113 (rail side)

2) After inserting the process unit into the copier, match the slit of the drum shaft and the slit of the drum using the drum rotating tool ③. Then, insert the drum fixing ⑤, and insert the mounting screw ④ into the center hole in the drum rotating tool.

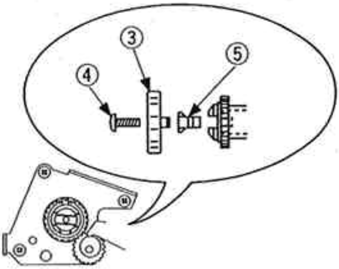


Figure 4-114

B. Control Panel

1. Removing the Control Panel from the Copier

1) Remove the mounting screw from the upper left cover, and remove the two stepped screws (M3x3) from the standard white cover.
2) Open the copyboard cover/RDF, and remove the three mounting screws ① and the three RDF catch fixings ②.

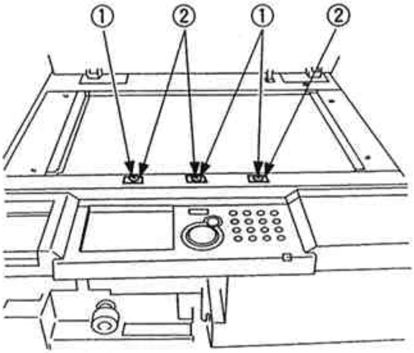


Figure 4-115

3) Remove the mounting screw ③ from the front of the copier's upper right cover.

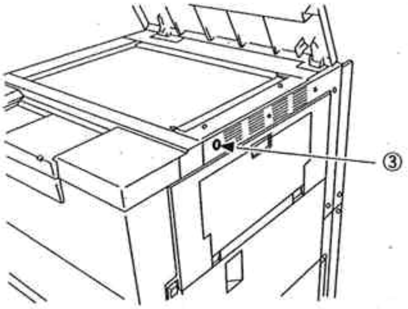


Figure 4-116

4) Remove the mounting screw from the control panel ④.

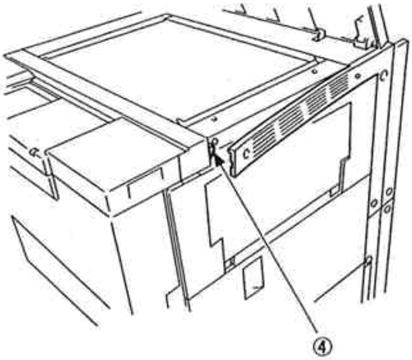


Figure 4-117

5) Open the front door, and remove the three mounting screws ⑤; then, remove the connector cover ⑥, and remove the connector. Open the hopper ⑦.

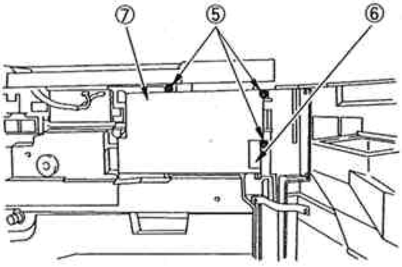


Figure 4-118

Caution:
When installing the hopper assembly, check to make sure that the connector is connected.

6) Shift the fixing feeding assembly releasing lever ⑧ from vertical to horizontal, and slide out the fixing feeding assembly ⑨.

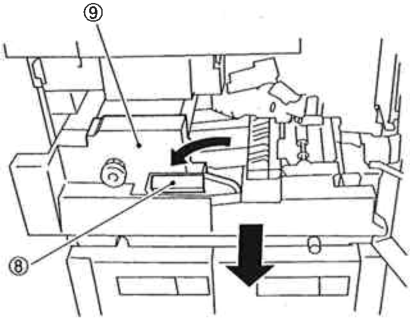


Figure 4-119

7) Remove the three mounting screws ⑩, and remove the inside upper cover ⑪; then, push in the fixing feeding assembly.

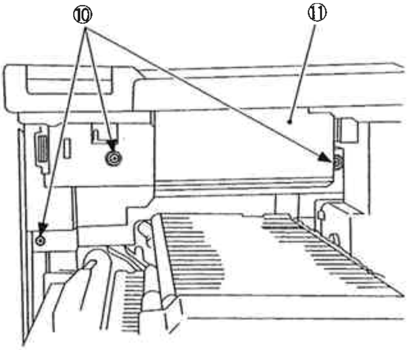


Figure 4-120

8) Remove the three mounting screws ⑫, and remove and turn over the control panel.

Caution:
Take care not to damage the surface of the control panel by the copier's chassis.

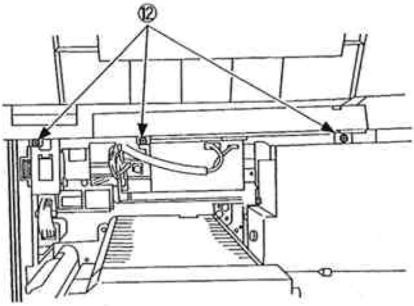


Figure 4-120a

9) Disconnect the three connectors (J911, J915, J955).

2. Removing the Control Panel PCB

1) Remove the five mounting screws ①, and slide the rear cover ② to the right to remove.

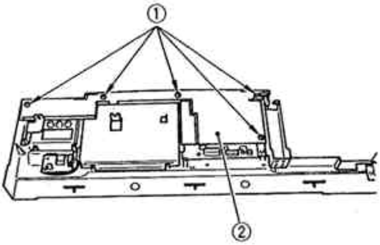


Figure 4-121

3. Removing the Touch Panel

1) Remove the five mounting screws ①, and remove the center support plate ②.

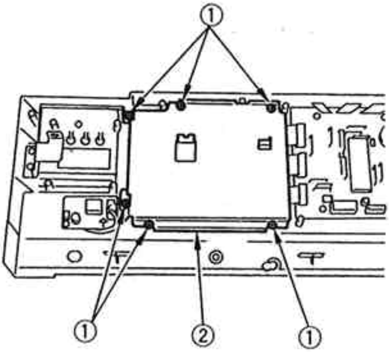


Figure 4-122

2) Remove the three flat cables ③ (J912, J913, J916) of the control panel CPU PCB, and disconnect the connector ④ (J956) of the inverter PCB.
3) Remove the four mounting screws ⑤, and remove the touch panel ⑥.

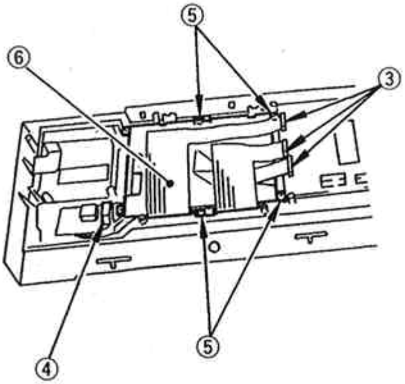


Figure 4-123

4. Removing the Control Panel CPU PCB

1) Remove the six mounting screws ①, and remove the control panel right support plate ② and the control panel CPU PCB ③.

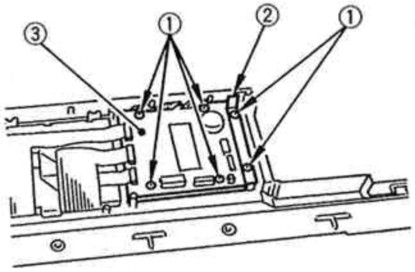


Figure 4-124

2) Remove the insulating sheet ④ and the eleven mounting screws ⑤; then, remove the keypad PCB ⑥.

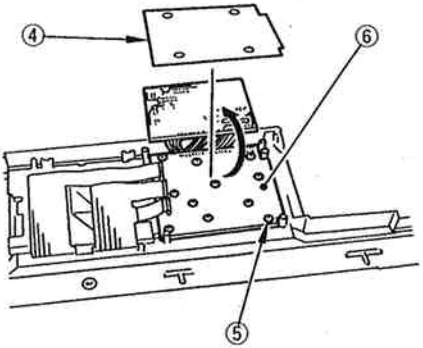


Figure 4-125

C. Door Switch Assembly

1. Removing the Front Door Switch Assembly

1) Open the front door.
2) Remove the inside upper cover.
3) Remove the control panel.
4) Remove the two mounting screws ①, and remove the door switch assembly ②.

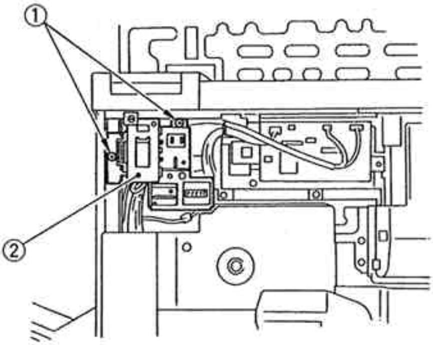


Figure 4-126

2. Removing the Multifeeder Door Switch Assembly

1) Remove the front door, and remove the hopper assembly.
2) Remove the three mounting screws ①, and remove the power supply switch assembly cover ②.

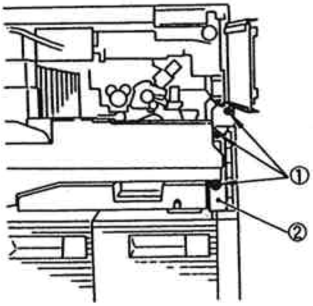


Figure 4-127

3) Remove the three mounting screws ③, and remove the multifeeder door sensor/multifeeder door catch assembly ④.

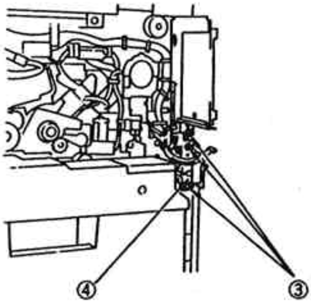


Figure 4-128

4) Remove the sensor from the multifeeder door sensor/multifeeder door catch assembly.

3. Installing the Drum Heater Switch

Install the switch so that its right side is in ON position.

D. Fan Unit

1. Removing the Scanner Cooling Fan

1) Open the front door, and remove the inside upper cover. (See p. 4-2.)
2) Disconnect the three connectors (J1, J2, J3) from the potential control PCB, and disconnect also the connector (J921) from the service switch PCB.
3) Remove the four mounting screws ①, and disconnect the connector ②; then, remove the scanner cooling fan unit ③ together with the potential controller PCB.

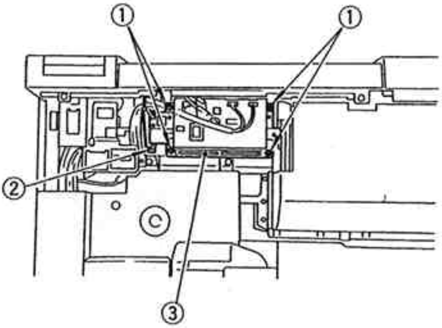


Figure 4-129

2. Removing the Air Exhaust Fan

1) Remove the rear cover.
2) Remove the two mounting screws ①, and disconnect the connector ②; then, remove the air exhaust fan ③.

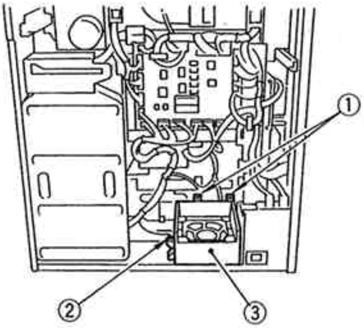


Figure 4-130

3. Removing the Fixing Air Exhaust Fan

1) Remove the rear cover.
2) Remove the three mounting screws ①, and disconnect the connector ②; then, remove the fixing heat exhaust fan ③.

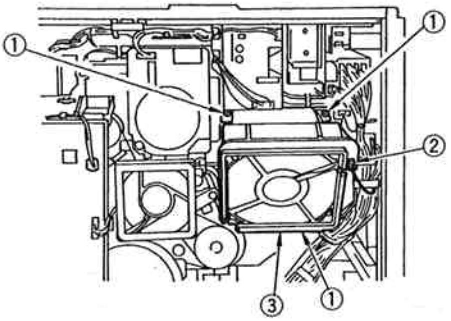


Figure 4-131

4. Removing the Developing Fan

1) Remove the rear cover.
2) Disconnect the connector ① (J301) from the high-voltage transformer PCB, and remove the three mounting scrwes ②; then, shift the high-voltage transformer assembly ③.

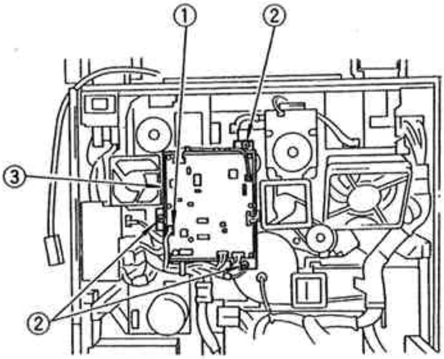


Figure 4-132

3) Remove the two mounting screws ④, and disconnect the connector ⑤; then, remove the developing fan ⑥.

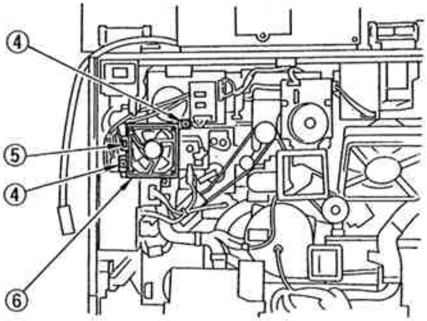


Figure 4-133

5. Removing the Cleaner Fan

1) Remove the rear cover.
2) Remove the three mounting screws, and shift the high-voltage transformer PCB.
3) Remove the two mounting screws ①, and disconnect the connector ②; then, remove the developing fan assembly ③.

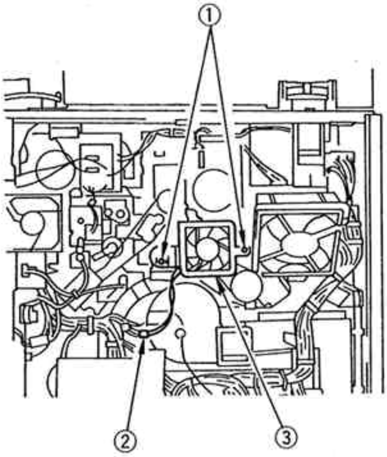


Figure 4-134

6. Removing the Feeding Fan

1) Remove the rear cover.
2) Remove the three mounting screws, and shift the high-voltage transformer PCB.
3) Remove the cleaner fan.
4) Remove the three mounting screws ①, and disconnect the connector ②; then, remove the feeding fan ③.

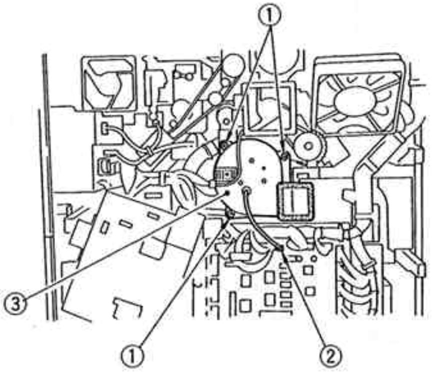


Figure 4-135

E. Removing the Counter Assembly

1) Open the front door, and remove the inside upper cover; then, remove the mounting screw from the control panel.
2) Disconnect the connector, and remove the mounting screw 2; then, remove the support plate together with the counter assembly.

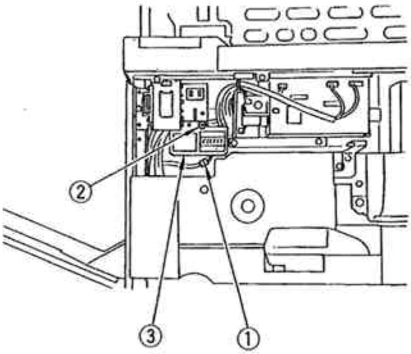


Figure 4-136

II. DRIVE SYSTEM

A. Scanner Drive System

1. Removing the Scanner Drive Assembly Motor

1) Remove the RDF/copyboard plate.
2) Remove the copier's rear cover.
3) Remove the three mounting screws, and remove the RDF/copyboard cover.

> **Caution:**
> The mounting screws used for the RDF/copyboard cover are longer than other mounting screws.

4) Remove the upper rear cover.
5) Remove the multifeeder assembly.
6) Remove the five mounting screws ①, and disconnect the two connectors ②; then, remove the RDF rear right mount ③.

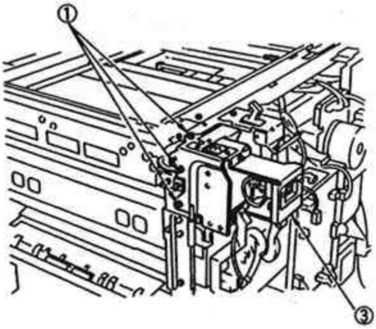


Figure 4-201

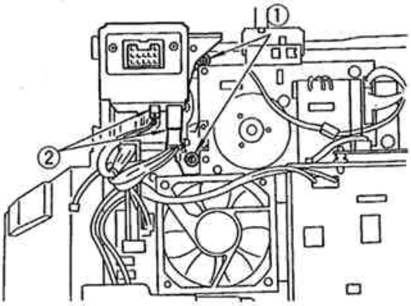


Figure 4-202

7) Remove the mounting screw ④, and remove the RDF/copyboard detecting assembly ⑤.

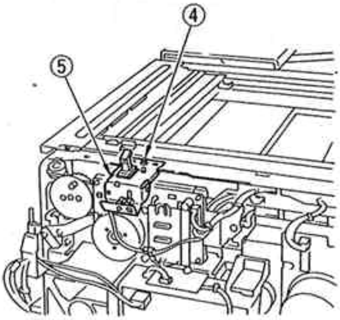


Figure 4-203

8) Remove the three mounting screws ⑥, and disconnect the two connectors ⑦; then, remove the scanner drive motor ⑧.

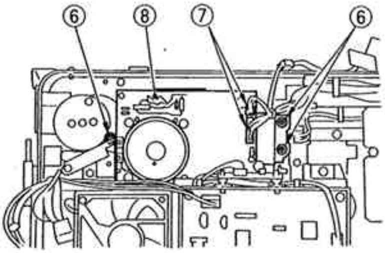


Figure 4-204

Caution:
The gear on the motor shaft is in contact with the drive belt; remove the motor while detaching the belt from the gear.

Caution:
When removing the scanner drive motor, be sure to mark the end of the motor assembly with a scriber for positioning later.
The scanner drive motor assembly is fixed in position using a special jig so that the tension on the belt of the motor assembly is within a specific range of values.

2. Outline of the Scanner Drive Cable

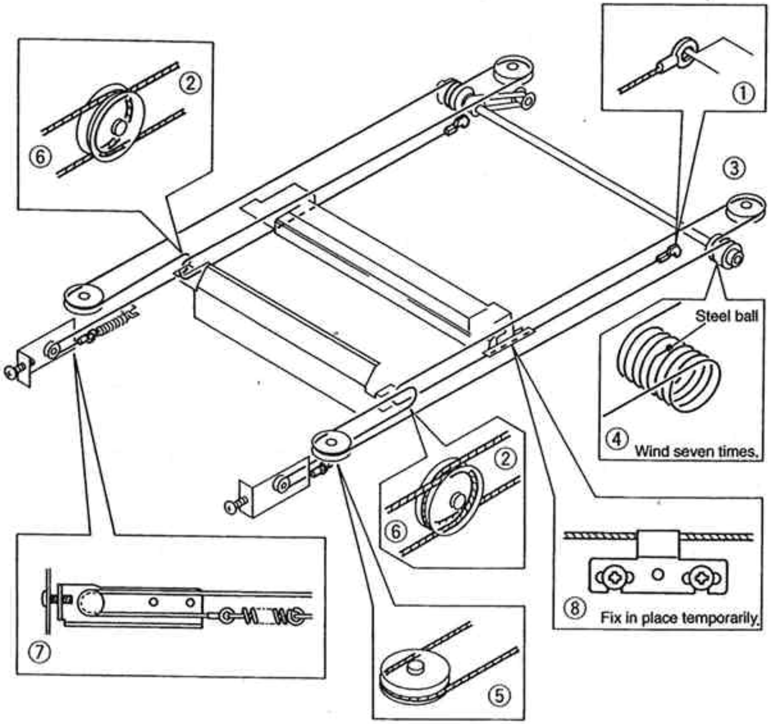
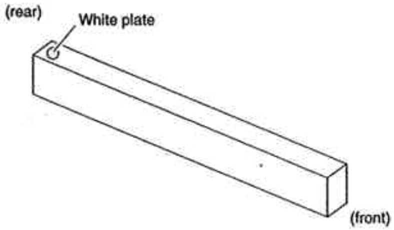

①
②
③
④ Wind seven times.
Steel ball
⑤
⑥
⑦
⑧ Fix in place temporarily.

Figure 4-205

2.1 Orientation of the Heat Absorbing Glass

Pay attention to the following orientation when replacing the heat absorbing glass.


(rear)
White plate
(front)

3. Removing the Scanner Drive Cable

1) Remove the upper right cover, left cover, rear cover, and upper rear cover.
2) Remove the copyboard glass.
3) Remove the control panel.
4) Remove the RDF rear right mount. (See p. 4-12.)
5) Remove the two mounting screws ④, and remove the scanner locking disk ⑤.

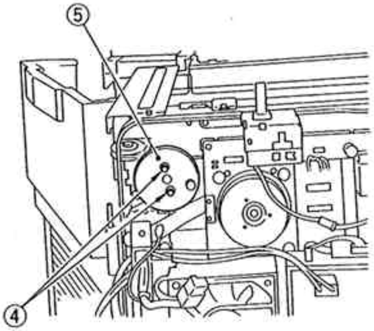


Figure 4-206

6) Disconnect the three connectors from the potential control PCB and the connector for the service switch.
7) Remove the four mounting screws ⑥, and remove the cooling fan ⑦.

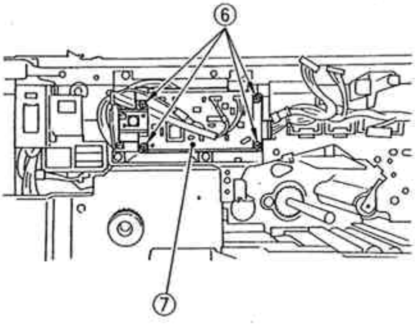


Figure 4-207

8) Remove the two cable fixing screws (rear) from the No. 1 mirror mount.

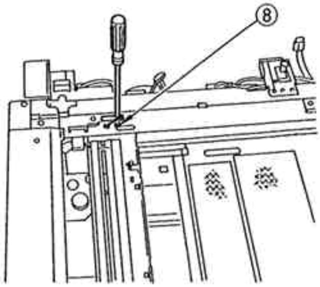


Figure 4-208

9) Remove the two cable fixing screws (front) from the No. 1 mirror mount.

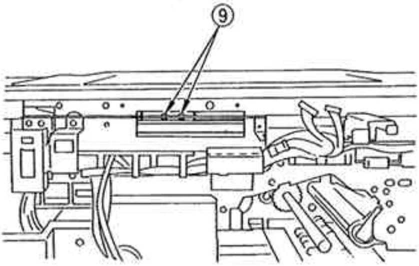


Figure 4-209

10) Loosen the tension screws ⑩, and loosen the scanner cable.

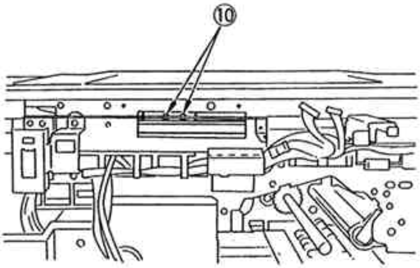


Figure 4-210a

11) Remove the scanner cable.

4. Adjusting the Tension of the Scanner Drive System

When you have installed the scanner drive cable, be sure to perform the following steps to adjust the tension on the cable:

1) Remove the five mounting screws, and remove the upper left cover.
2) Loosen the fixing screw on the tension spring bracket.
3) Turn the tension adjusting screw so that the value is as indicated below.
   - Turn the tension adjusting screw A so that the reading on the spring gauge is 200 ±50g when the center of the scanner cable is pulled about 10 mm.

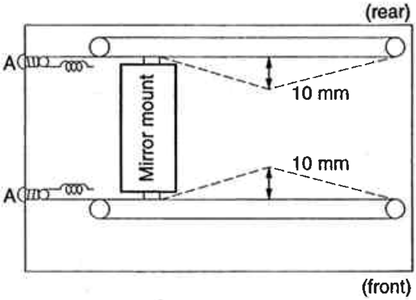


Figure 4-210b

5. Positioning the Mirror

When you have installed the scanner drive cable, be sure to perform the following steps to adjust the mirror position:

1) Move the No. 1 mirror mount and the No. 2/No. 3 mirror mount to the left.
2) Set the mirror positioning tool (front, rear; FY9-3011) as indicated.

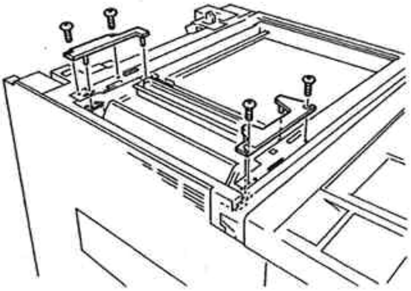


Figure 4-211

3) Tighten the two screws on the clamp used to fix the scanner drive cable to the No. 1 mirror mount.

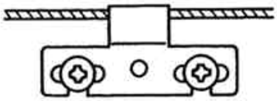


Figure 4-212

4) Remove the tool.

6. Adjusting the Position of the Scanner

After making copies, remove the control panel, and check to make sure that the line A of the electrode, i.e., the front of the No. 1 mirror mount matches B of the hole in the glass support (front).

Otherwise, change the setting of 'BRAKE_SC' in service mode (*3*) so that the line of A matches B.

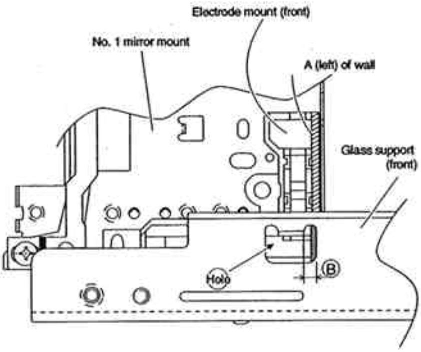


Figure 4-213a

7. Adjusting the Position of the Scanner Locking Solenoid

1) Remove the rear cover.
2) Remove the multifeeder assembly.
3) Adjust the stroke of the scanner locking solenoid as indicated.

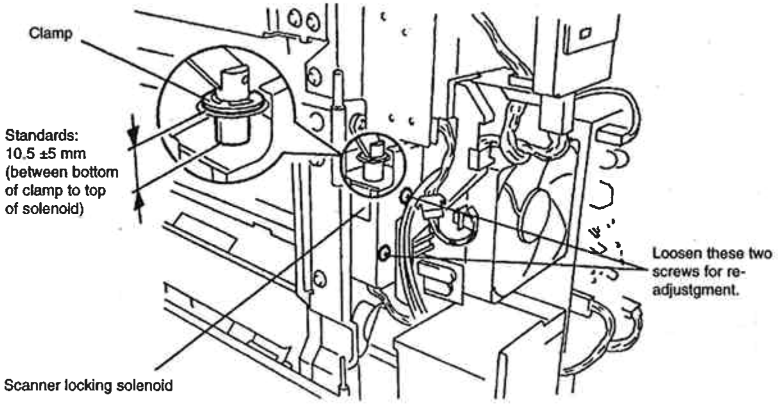

Clamp
Standards:
10.5 ±5 mm
(between bottom
of clamp to top
of solenoid)
Loosen these two
screws for re-
adjustgment.
Scanner locking solenoid

figure 4-213b

B. Lens Drive Assembly

Take note of the following when handling the zoom lens or the lens stage drive motor; the gear of the output shaft may become damaged if you turn on the power without removing the lens fixing or if you move the lens or the lens stage without disconnecting the power plug.

① At the time of installation of the machine, be sure to remove the lens fixing from the lens stage before connecting the power plug.

② Be sure to disconnect the power plug before moving the lens stage or the zoom lens by hand.
In addition, be sure to hold a section where it engages with the rail to avoid abrupt movement.

1. Removing the Lens Y Direction Drive Motor

1) Remove the copyboard glass retainer, and remove the copyboard glass.
2) Move the No. 1 mirror mount to the left.
3) Remove the three mounting screws ①, and remove the lens hood ②.

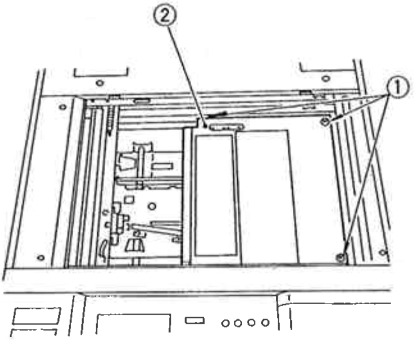


Figure 4-214

Caution:
When installing the lens hood, fit the bosses on the lens hood into the the rail at the front; then, engage the hook at the rear while turning the lens hood to the right.

4) Remove the two cable mounting screws ③, and remove the two mounting screws ④; then, lift the lens Y direction drive motor together with its support ⑤.

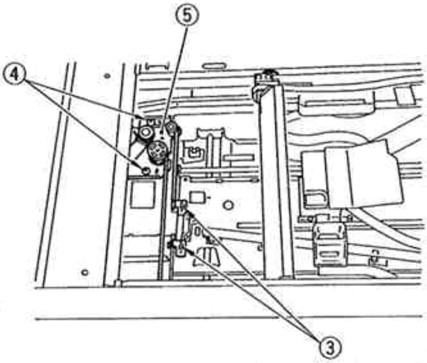


Figure 4-215

5) Disconnect the connector ⑥, and remove the two mounting screws ⑦; then, remove the lens Y direction drive motor ⑧.

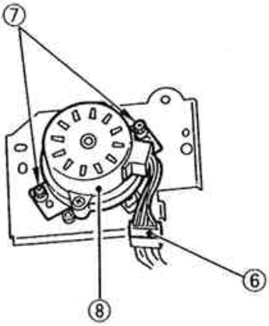


Figure 4-216

2. Removing the Lens Stage Temporarily

1) Remove the copyboard cover.
2) Move the No. 1 mirror mount to the left of the scanner rail.

> **Caution:**
> Be sure to push the center of the No. 1 mirror mount.

3) Remove the lens hood.
4) Remove the Y direction cable clamp, and fix the end of the Y direction cable in place temporarily.
5) Remove the mounting screw ①, and remove the light-blocking plate ② (on the lens mount).

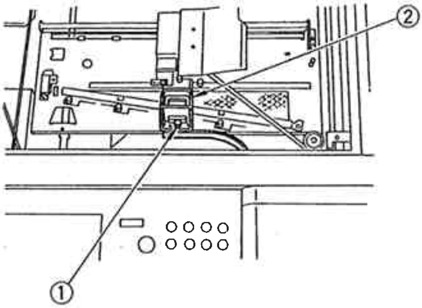


Figure 4-217

6) Remove the mounting screw ③, and remove the light-blocking belt 2 (front) ④ together with its holder. (Tape the light-blocking belt you have removed in place on the lens stage.)

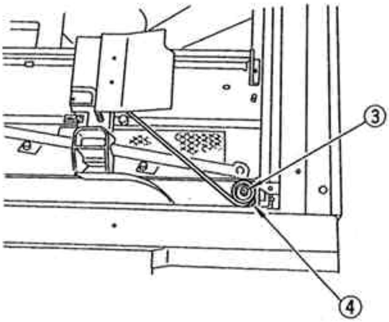


Figure 4-218

7) Lift the lens stage ⑤, and remove the bushing ⑥ from the rail ⑦.

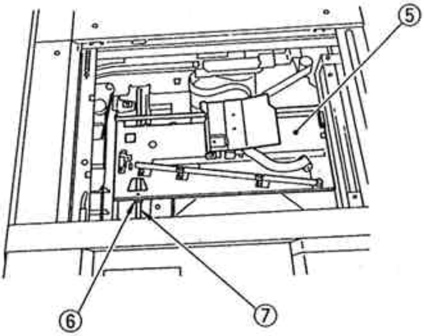


Figure 4-219

3. Installing the Light-Blocking Belt

1) Take up the light-blocking sheet ② on the bobbin ①, thereby removing the slack; then, turn the bobbin mount ③ two to three times to the right, fit the boss on the bottom of the bobbin mount into the hole in the belt mount ④ to set the bobbin, and fix it in place with a mounting screw ⑤.

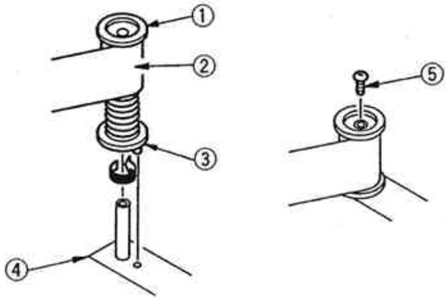


Figure 4-220

4. Removing the Lens X Direction Drive Motor

1) Remove the lens stage.
2) Disconnect the connector ①, and remove the mounting screw ②; then, remove the motor mount ③.

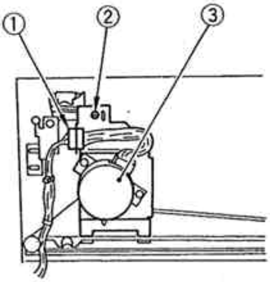


Figure 4-221

3) Remove the two mounting screws ④, and remove the lens X direction drive motor ⑤ from the motor mount.

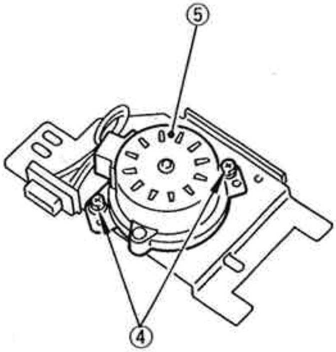


Figure 4-222

5. Attaching the Lens X Direction Drive Belt

Attach the belt with a mounting screw ② when the lens X direction drive motor ① has lowered on its own weight.

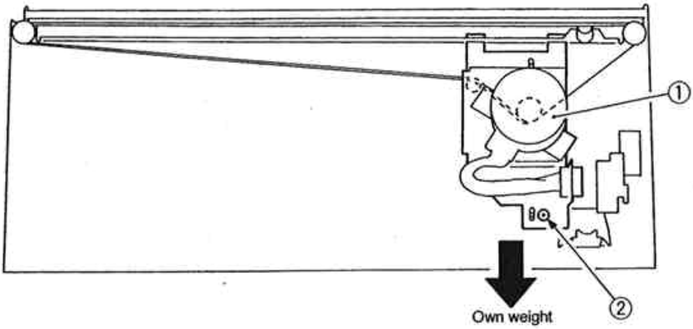
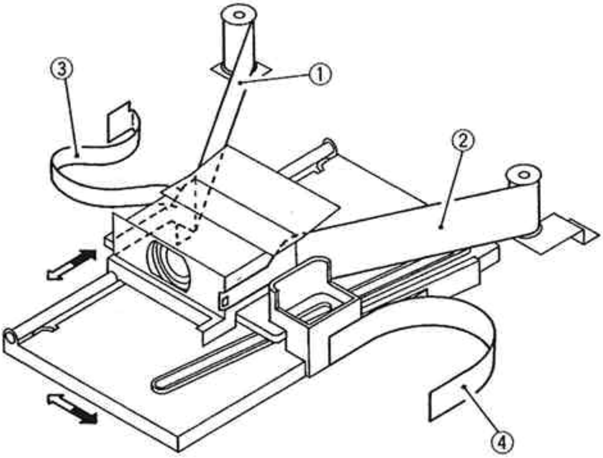


Figure 4-223

6. Attaching the Light-Blocking Belt



① Light-blocking belt 1
② Light-blocking belt 2
③ Light-blocking belt 3
④ Light-blocking belt 4

Figure 4-224

7. When Replacing the Light-Blocking Belt

1) Take up the belt ① on the bobbin ② by turning it clockwise, and tape it in place.

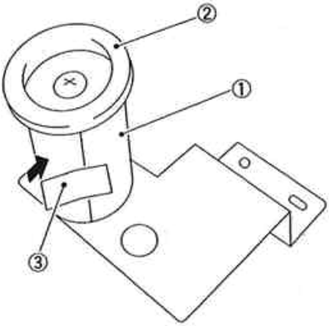


Figure 4-225

2) Fix the light-blocking belt mount in place on the lens mount.
3) Turn the bobbin clockwise and counterclockwise by giving it several half turns; then, release it so that the spring inside the bobbin is free.
4) With the bobbin turned 2 to 2.5 times clockwise, detach the tape, and slide out the end of the belt.
5) Hook the end of the belt on the lens unit.

8. Cutting the Light-Blocking Sheet of the Lens Hood Assembly

Perform the following if the zoom lens shows faulty operations or images tend to be foggy:

1) Place the lens hood facing upward, and cut the light-blocking sheet 1 along the left end of the lens hood.

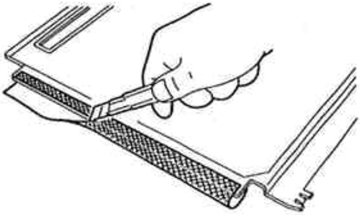


Figure 4-225a

2) On the back of the lens hood, attach a length of two-sided tape (regular tape). Peel the backing from the tape, and attach the light-blocking sheet 1 while removing the slack in the direction of the arrow.

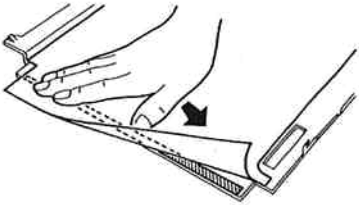


Figure 4-225b

3) Cut the excess of the light-blocking sheet 1 along the left end of the lens hood.

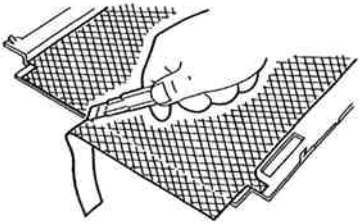


Figure 4-225c

Caution:
- Exercise enough care not to injure your hands when cutting the light-blocking sheet 1.
- Take care not to apply excessive force so that the lens hood will not be deformed when cutting the sheet.
- When putting two-sided tape, be sure it does not extend over the sheet.

C. Main Motor Assembly

1. Removing the Main Motor

1) Remove the rear cover.
2) Remove the high-voltage PCB.
3) Remove the spring ①; loosen the tension pulley, remove the four mounting screws ②, detach the belt at the tip of the main motor, and remove the main motor.

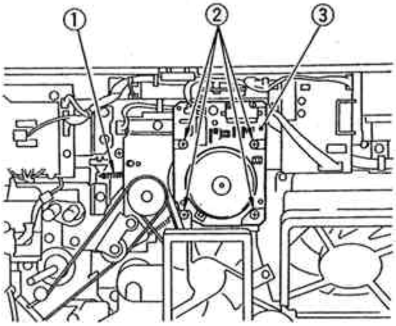


Figure 4-226

D. Fixing/Waste Toner Drive Assembly

1. Construction

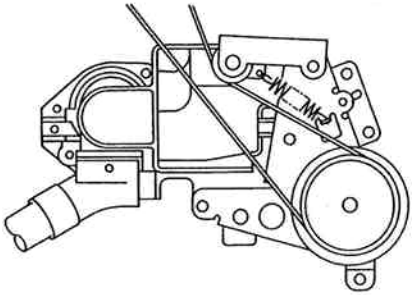


Figure 4-227

2. Removing the Waste Toner Bottle

1) Remove the mounting screw, remove the lower right cover, and slide out the waste toner bottle to the side of the multifeeder.

3. Removing the Fixing/Waste Toner Drive Assembly

1) Open the front door, and slide out the process unit, fixing/feeding unit, and holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the high-voltage transformer PCB.
4) Remove the cleaner fan and the feeding fan.
5) Remove the waste toner bottle.
6) Remove the spring ①, and loosen the tension pulley ②; then, detach the timing belt ③.

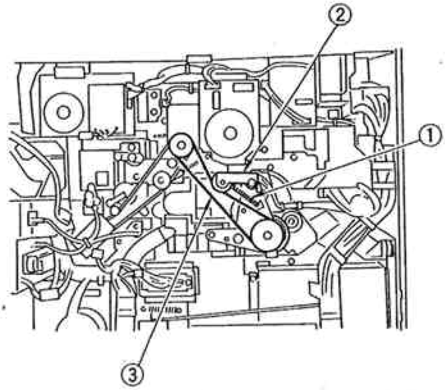


Figure 4-228

7) Remove the three mounting screws ④, and disconnect the holding tray assembly drawer connector ⑤.

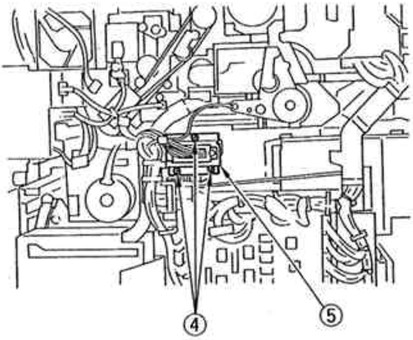


Figure 4-229

8) Remove the mounting screw of the DC controller PCB, and disconnect the three connectors (J113, J114, J115) and two relay connectors.

9) Remove the four mounting screws ⑥, and remove the fixing/waste toner drive assembly ⑦ together with the waste toner feeding assembly.

Caution:

When removing the fixing/waste toner drive assembly, stop up the tip of the waste toner pipe with a ball of paper or the like to prevent spilling of waste toner.

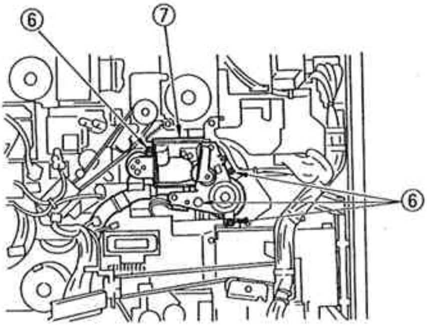


Figure 4-230

E. Drive Assembly (drum/developing assembly)

1. Construction

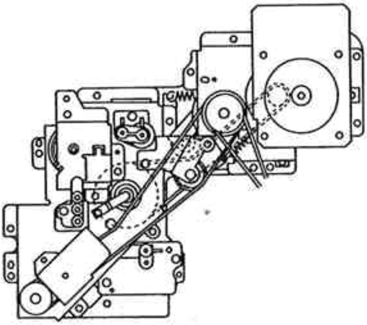


Figure 4-231

2. Removing the Drive Assembly

1) Open the front door, and slide out the process unit, fixing/feeding unit, and holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the high-voltage transformer PCB and the high-voltage transformer assembly.
4) Remove the waste toner bottle.
5) Remove the cleaner fan, feeding fan, and developing fan.
6) Remove the fixing/waste toner drive assembly.
7) Remove the three mounting screws ① to free the harness guide 1 ②.

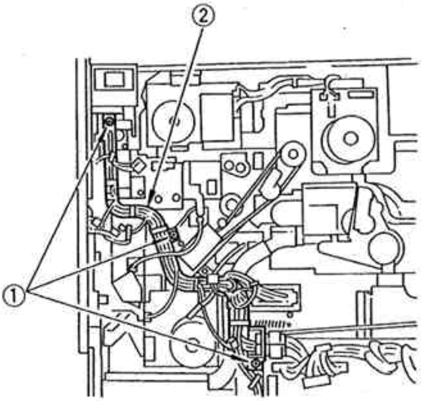


Figure 4-232

8) Remove the nine mounting screws 3, and remove the drive unit 4.

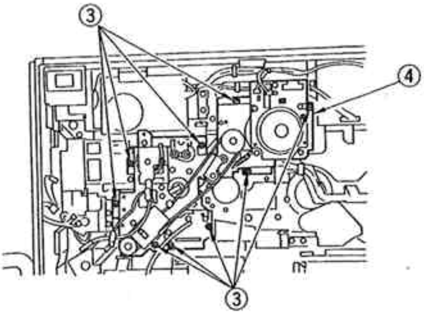


Figure 4-233

F. Vertical Path Drive Assembly

1. Construction

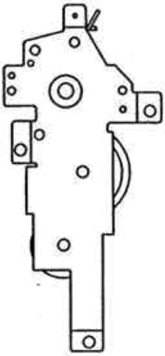


Figure 4-234

2. Removing the Vertical Path Drive Assembly

1) Remove the lower right cover.
2) Remove the rear cover.
3) Remove the waste toner bottle.
4) Remove the five mounting screws ①, and remove the rear right grip assembly ②.

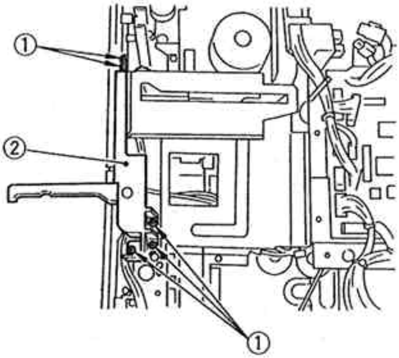


Figure 4-235

5) Remove the three mounting screws ③, and remove the waste toner bottle support plate ④.

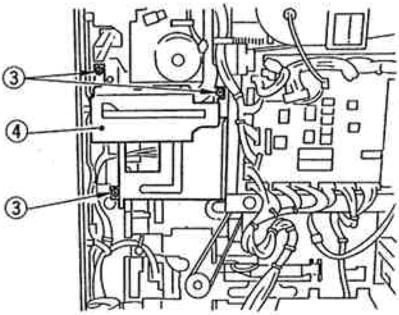


Figure 4-236

6) Remove the two mounting screws, and remove the harness guide 2 ⑥.

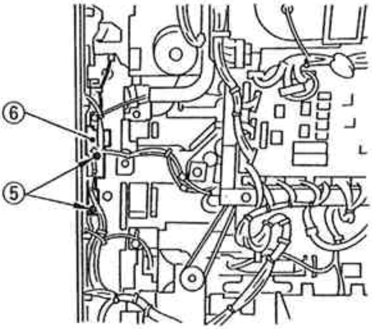


Figure 4-237

7) Remove the four mounting screws ⑦, and disconnect the connector ⑧; then, remove the vertical path drive assembly ⑨.

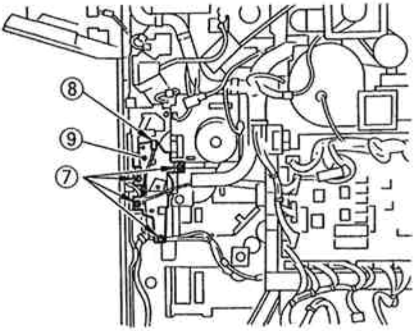


Figure 4-238

G. Pick-Up Drive Assembly

1. Construction

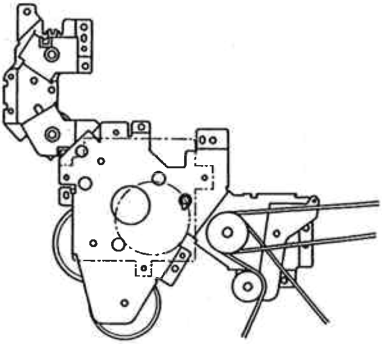


Figure 4-239

2. Removing the Pick-Up Drive Assembly

1) Open the front door, and slide out the process unit, fixing/feeding unit, and holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the high-voltage transformer PCB and the high-voltage transformer assembly.
4) Remove the waste toner bottle.
5) Remove the cleaner fan, feeding fan, and developing fan.
6) Remove the fixing/waste toner drive assembly.
7) Free the harness guide 1. (See Figure 4-232.)
8) Detach the timing belt.

9) Remove the two mounting screws ①, and remove the deck relay drive assembly ②.

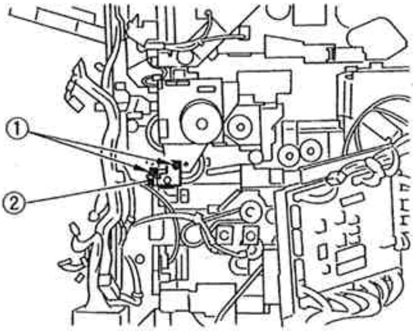


Figure 4-240 (paper deck type)

10) Remove the eight mounting screws ③, and disconnect the two connectors ④; then, remove the pick-up drive assembly.

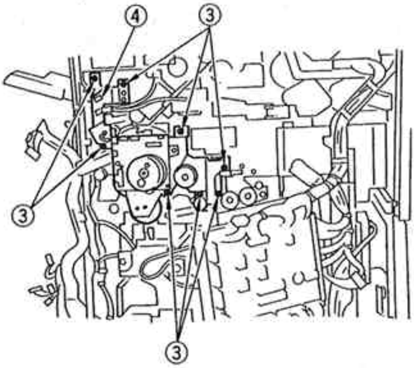


Figure 4-241

H. Duplexing Unit Drive 1 Assembly

1. Construction

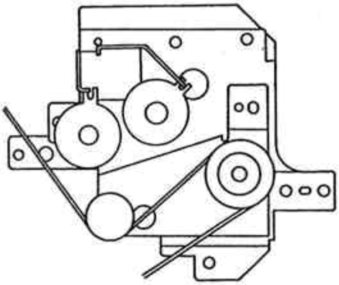


Figure 4-242

2. Removing the Duplexing Unit Drive 1 Assembly

1) Open the front door, and slide out the holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the DC controller PCB.
4) Remove the two mounting screws ①, and disconnect the two connectors; then, remove the connector mount ③.

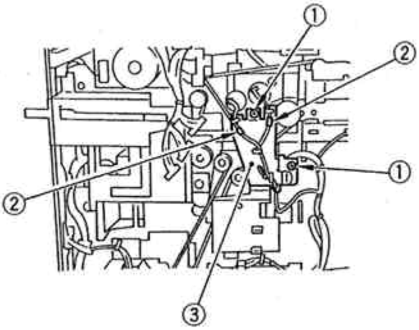


Figure 4-243

5) Detach the timing belt.
6) Remove the four mounting screws ④, and remove the duplexing unit drive 1 assembly ⑤.

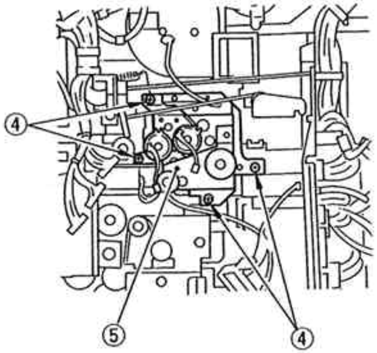


Figure 4-244

I. Lifter Drive Assembly

1. Construction

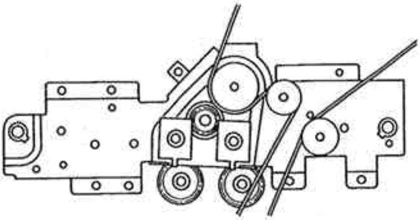


Figure 4-245

2. Removing the Lifter Assembly

1) Open the front door, and slide out the holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the waste toner bottle.
4) Remove the rear right grip assembly.
5) Remove the three mounting screws ①, and remove the waste toner bottle support plate ②.

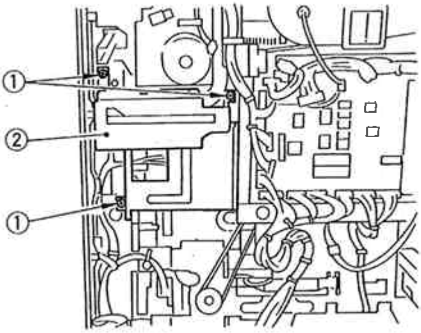


Figure 4-246

6) Open the DC controller PCB.
7) Remove the two mounting screws ③, and remove the two connectors ④; then, remove the connector mount ⑤.

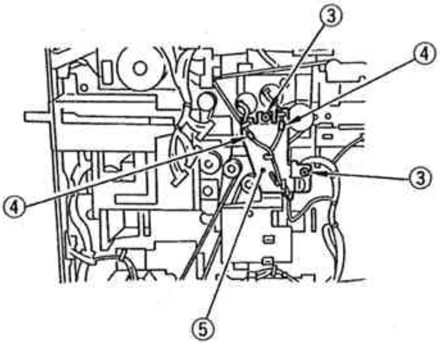


Figure 4-247

8) Remove the two mounting screws ⑥, and remove the harness mount ⑦.

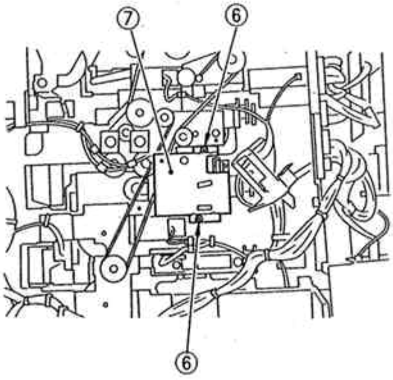


Figure 4-248

9) Remove the timing belt ⑧.

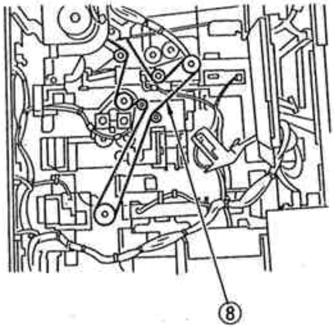


Figure 4-249

10) Remove the four mounting screws ⑨, and disconnect the two connectors ⑩; then, remove the lifter drive assembly ⑪.

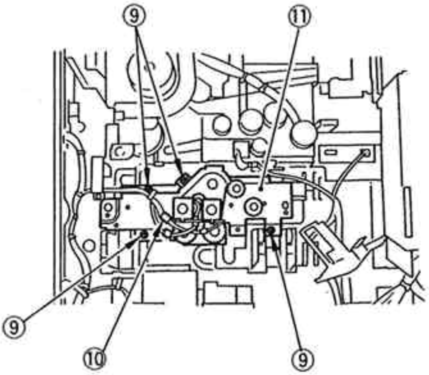


Figure 4-250

J. Cassette Pick-Up Drive Assembly

1. Construction

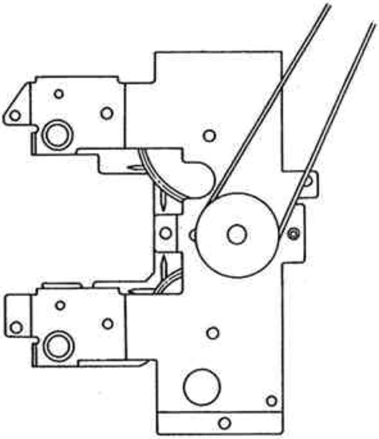


Figure 4-251

2. Removing the Cassette Pick-Up Drive Assembly

1) Open the front door, and slide out the holding tray assembly about 10 cm from the copier.
2) Remove the rear cover.
3) Remove the waste toner bottle.
4) Remove the waste toner bottle support plate.
5) Remove the rear right grip assembly.
6) Remove the DC controller PCB, and detach the timing belt.
7) Remove the two mounting screws 1 each of the paper width detection assembly of the cassettes 3 and 4; then, disconnect the connector ① (one each).

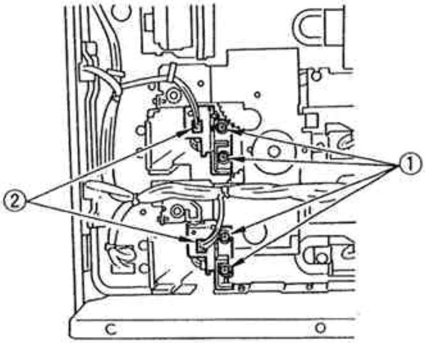


Figure 4-252

8) Remove the five mounting screws ③, and remove the cassette pick-up drive assembly ④.

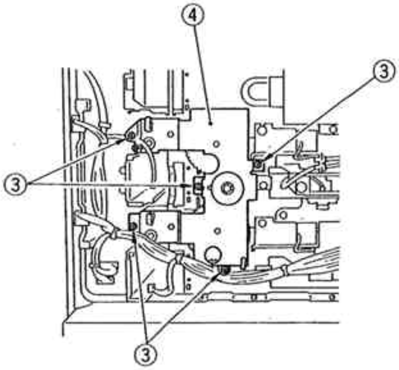


Figure 4-253

K. Attaching the Drive Belt

Attach the drive belt through the gears and rollers as indicated in Figure 4-254.

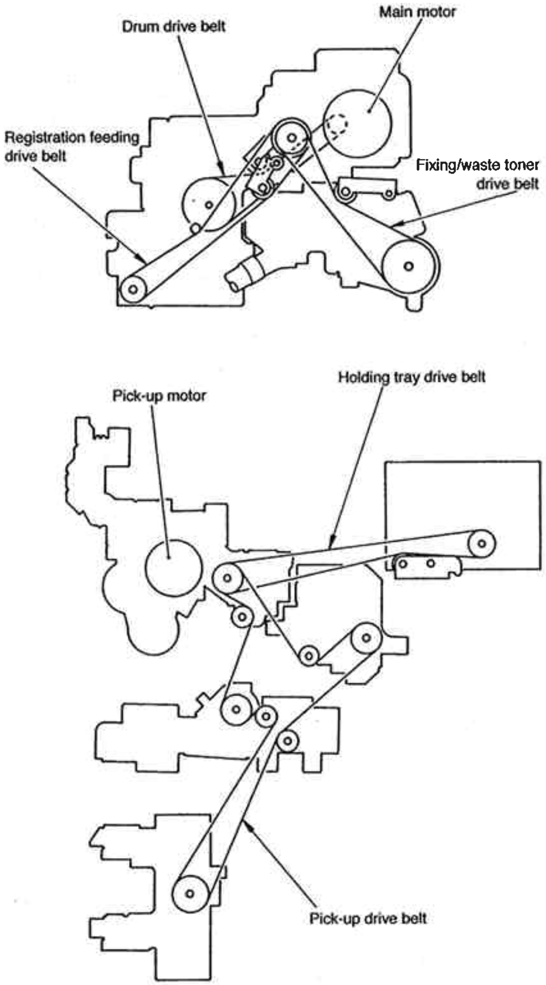

Drum drive belt
Main motor
Registration feeding drive belt
Fixing/waste toner drive belt
Pick-up motor
Holding tray drive belt
Pick-up drive belt

Figure 4-254

Caution:
When installing the holding tray drive belt, be sure to attach the holding tray drive belt on the roller located at the bottom (rear when viewed from the rear of the machine) and to attach the pick-up drive belt on the roller at the top (front when viewed from the rear of the machine).

III. PICK-UP/FEEDING SYSTEM

A. Multifeeder Assembly

1. Removing the Multifeeder Assembly

1) Remove the right cover, and disconnect the two connectors ①.

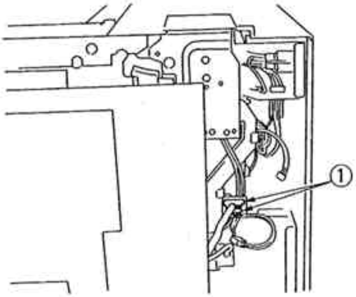


Figure 4-301

2) Open the multifeeder assembly, and open the multifeeder door by pulling on the grip. Remove the door tape, and lift the multifeeder assembly to separate the multifeeder assembly from the hinge.

2. Removing the Pick-Up Roller

1) Open the multifeeder paper guide.
2) Remove the stop rings ① from both left and right 1 (two each); then, remove the shutters ② and the two rollers ③ (two each).

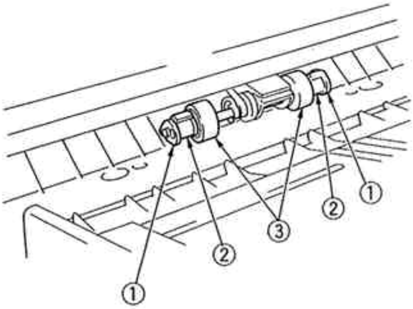


Figure 4-302

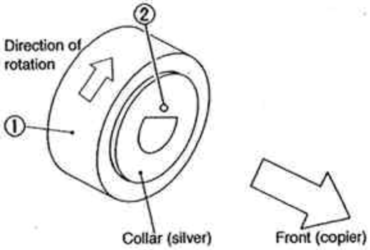
Caution:
If the multifeeder was used at time of installation or if it was used after a long time, pick-up operation may fail.
If such is the case, remove the protection sheet from the sponge roller, and dry wipe the surface of the sponge roller.

3. Installing the Pick-Up Roller

Install the pick-up roller by reversing the steps used to remove it with the following in mind.

- The front and rear pick-up rollers are not interchangeable.
- The front pick-up roller is silver.

When installing the pick-up roller ① to the pick-up assembly, be sure that the round marking ② on the collar (silver) is toward the front.

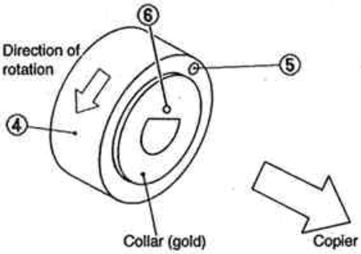


① Marking (roller)
② Marking (collar)

Figure 4-303

- The pick-up roller at the rear is gold.

When installing the pick-up roller ④ to the pick-up assembly, be sure that the round marking ⑤ on the side of the roller and the round marking ⑥ on the collar (gold) are at the rear of the copier.



④ Pick-up roller
⑤ Marking (roller)
⑥ Marking (collar)

Figure 4-303a

4. Removing the Separation Roller

1) Remove the multifeeder assembly.
2) Remove the two mounting screws ①, and remove the upper registration roller assembly.

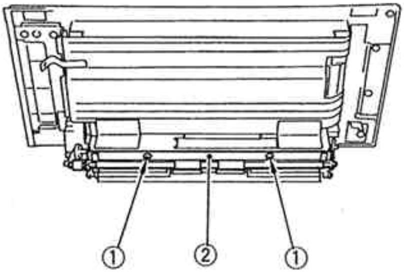


Figure 4-304

3) Remove the spring ③ at the front and the rear (one each) and the mounting screw ④ at the front; then, pull out the positioning pin ⑤, and remove the lower registration roller assembly ⑥.

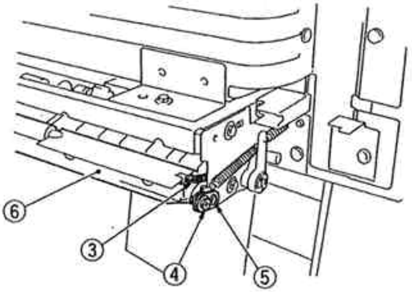


Figure 4-305

4) Remove the two mounting screws ⑦, and remove the separation roller support ⑧.
5) Remove the joint, and remove the separation roller ⑨.

Caution:
The bushing at the front will come off when removing the separation roller. Take care.

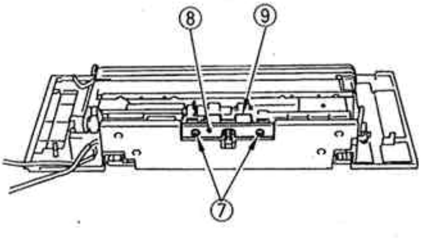


Figure 4-306

Caution:
The urethane sponge used is pink immediately after foaming and changes to yellow as time passes, faster if exposed to light; it changes from pink to orange and to yellow, showing the general characteristics of urethane sponge; however, such discoloration will not lower its physical properties (performance). Keep in mind that the same type of sponge can take on different colors.

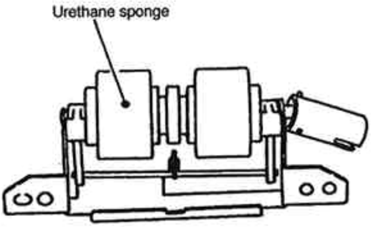


Figure 4-306a

5. Removing the Feeding Roller

1) Remove the multifeeder assembly.
2) Remove the separation roller.
3) Remove the pick-up roller at the front, and remove the stop ring.
4) Remove the stop ring ① at the front of the feeding roller assembly, and remove the feeding roller assembly ③ together with the timing belt ②.

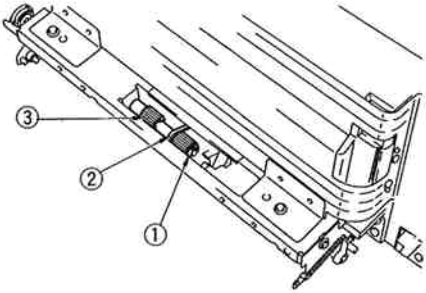


Figure 4-307

6. Removing the Multifeeder Paper Sensor

1) Remove the mounting screw ①, and remove the solenoid cover ②. Remove the mounting screw ③. Remove the solenoid ④ together with the support plate.

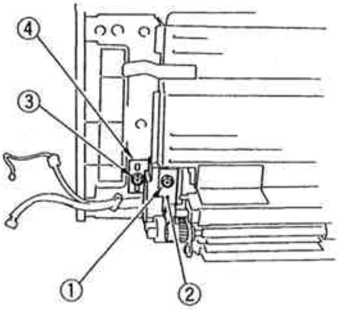


Figure 4-308

2) Remove the two mounting screws ⑤, and remove the grip ⑥.

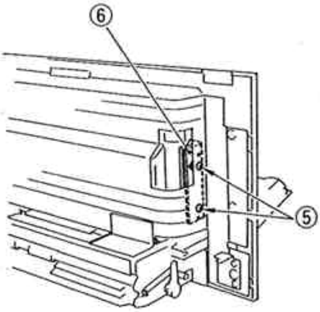


Figure 4-309

3) Remove the ten mounting screws ⑦, and remove the door sensor fixing ⑧ and the multifeeder cover ⑨.

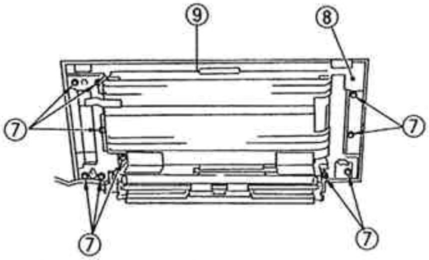


Figure 4-310

4) Remove the two mounting screws ⑩, and remove the lower cover ⑪.

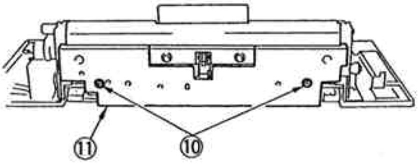


Figure 4-311

5) Remove the two mounting screws ⑫, and remove the guide plate ⑬.

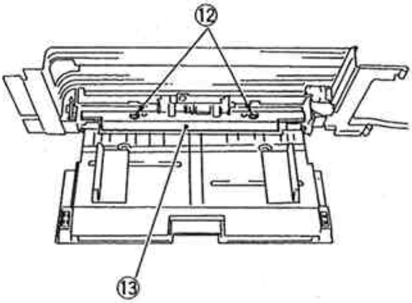


Figure 4-312

6) Remove the two mounting screws ⑭, and remove the sensor mount ⑮.

7) Remove the sensor from the sensor mount.

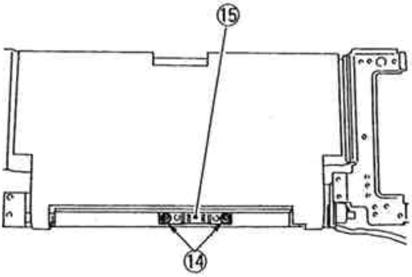


Figure 4-313

7. Attaching the Side Guide Timing Belt for the Multifeeder Assembly

Butt the rack plate of the multifeeder against section A (open state).

Move the slide volume in the direction of B, and attach the timing belt to the pulley.

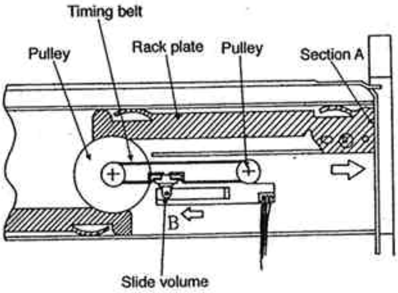
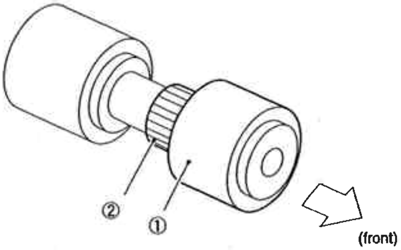

Timing belt
Pulley
Rack plate
Pulley
Section A
B
Slide volume

Figure 4-314

8. Installing the Feeding Roller of the Multifeeder

Install the pick-up roller ① to the multifeeder pick-up assembly so that the belt pulley ② and the marking '1' ③ are at the front of the copier.



① Pick-up roller
② Belt pulley
③ Marking (roller)

Figure 4-314a

9. Adjusting the Pick-Up/Feeding Roller Pressure (multifeeder)

If double feeding or pick-up failure occurs during pick-up, adjust the position of the pressure spring of the separation roller:

- If double feeding occurs, move the position of the spring hook on side A.
- If pick-up failure occurs, move the spring hook on side B.

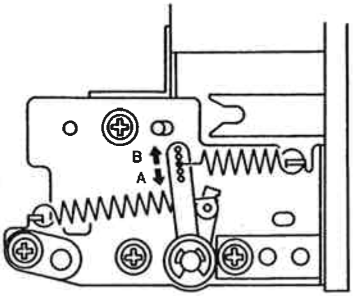


Figure 4-314b

10. Positioning the Pick-Up Roller Releasing Solenoid (multifeeder)

Make adjustments by sliding the solenoid in the direction of A so that the gap between the shutter ① and the shutter plate ② is 0.4 ±0.2 mm when the solenoid is pulled.

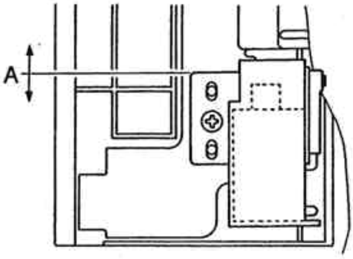


Figure 4-314c

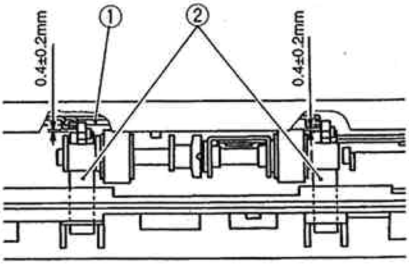


Figure 4-314d

B. Paper Deck Assembly

1. Removing the Paper Deck Assembly from the Copier

1) Remove the two stoppers ① from the left and the right of the paper deck, and remove the paper deck.

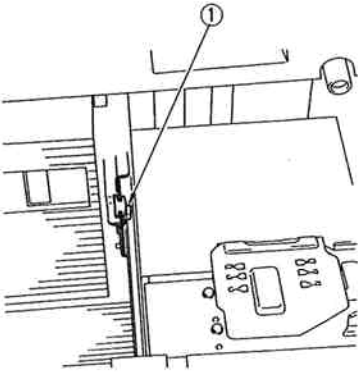


Figure 4-315 (left side of right deck)

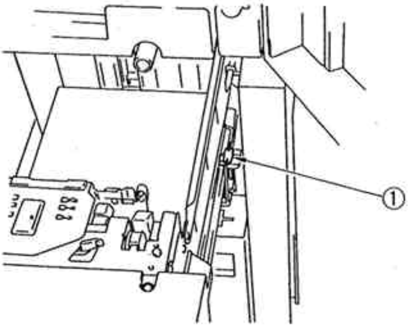


Figure 4-315a (right side of right deck)

2. Removing the Lifter Cable

1) Remove the paper deck.
2) Remove the two mounting screws from the top, loosen the two mounting screws on the side, and remove the deck front cover.
3) Remove the two mounting screws ① from the inside of the deck; then, remove the guide plate ② at the front and the rear.

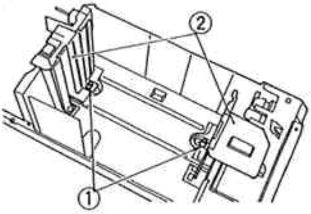


Figure 4-316

4) Mark the position of the latch assembly with a scribe; then, remove the seven mounting screws from the left and the right (7 in total), and remove the latch assembly ④.
5) Remove the gear cover ⑤ from the front right.

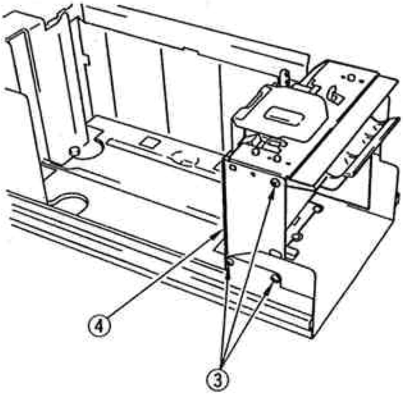


Figure 4-317 (left)

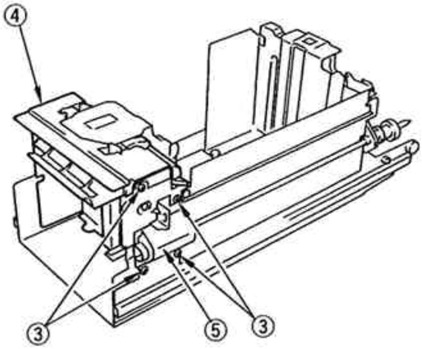


Figure 4-317a (right)

6) Remove the mounting screw ⑥ from the front, thereby freeing the oil damper plate ⑦.

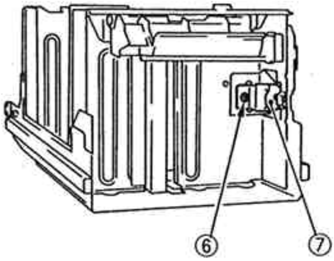


Figure 4-318

7) Remove the E-ring ⑧, and remove the end of the cable ⑨ from the pulley while sliding out the gear and the pulley cover to the front.

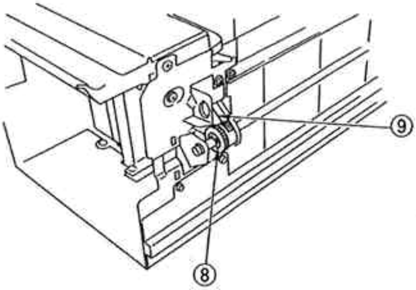


Figure 4-319

8) While holding the gear and the spring at the rear, remove the E-ring ⑩; then, remove the cable ⑫ from the pulley cover ⑪ while sliding out the pulley cover to the front.
9) Remove the end of the cable from the pulley.

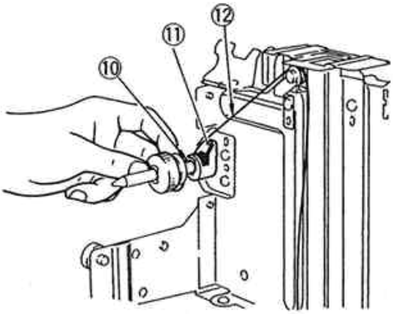


Figure 4-320

10) Remove the mounting screw ⑬ from the cable relay assembly at the front, and remove the fixing ⑭.

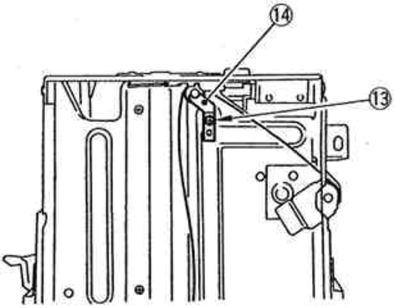


Figure 4-321

11) Remove the mounting screw ⑮ from the cable relay assembly at the rear, and remove the fixing ⑯.

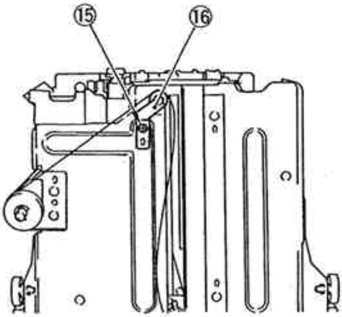


Figure 4-322

12) Remove the two mounting screws ⑰, and remove the grip assembly ⑱.

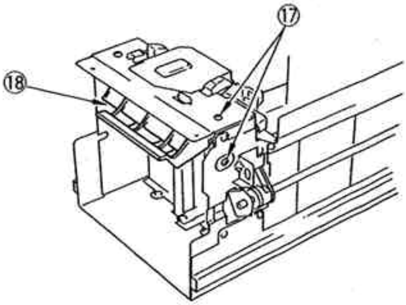


Figure 4-323

13) Remove the eleven mounting screws ⑲, and remove the cable together with its mounting plate ⑳.

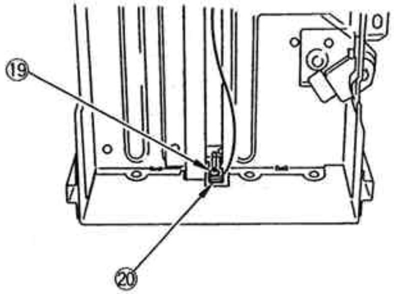


Figure 4-324 (front)

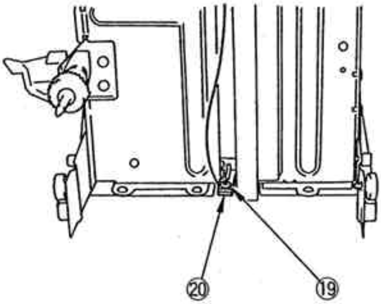


Figure 4-325 (rear)

Caution:
When setting the left compartment, the locking assembly of the grip and the fixing assembly on the copier could hit each other if care is not taken, causing the fixing screw to become loose and, ultimately, deforming the hook fixing plate. Moreover, the locking at the correct position of the left compartment will be weak, displacing the left compartment to the front, loosening the fixing screw on the hook fixing plate.
The above could lead to registration faults or left compartment displacement.

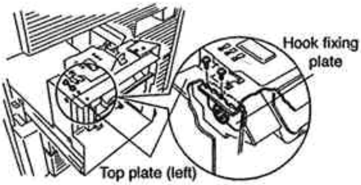


Figure 4-325a

3. Changing the Deck Size

To change the size of the paper deck, change the position of the guide plate at the front, rear, and rear left.

Reference:
At time of shipment from the factory, the paper deck is set to A4.
You need not perform the following steps if the user uses A4 sheets. (Be sure, however, to attach the paper size label.)

1) Pull out the deck to the front until it stops.
2) Remove the three mounting screws ① from the guide plate at the front, rear, and rear left, and remove the three guide plates ②.

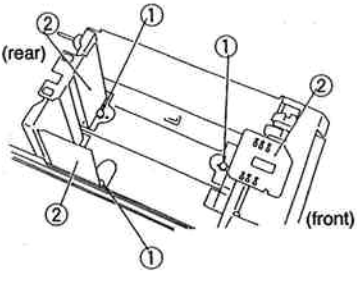


Figure 4-326

3) Install the front, rear, and rear left guide plate ② according to the size markings on the base plate, front side plate, and guide plate of the deck.

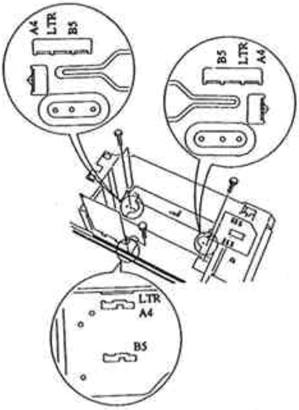


Figure 4-327

Caution:
Check to make sure that the front and the rear guide plates are installed as follows:

- The plate is installed at a right angle in relation to the base of the deck.
- The plate is installed in parallel in relation to the metal plate at the front and the rear.

4) Put copy paper in the deck, and push in the deck into the copier.
5) Register the new deck size in the copier's memory in service mode.

5. Adjusting the Registration for the Deck

Remove the deck front cover; then, loosen the mounting screws ③ on both left and right of the deck (7 in total), and slide the latch assembly ④ back and forth until the specifications indicated in Figure 4-330 are met.

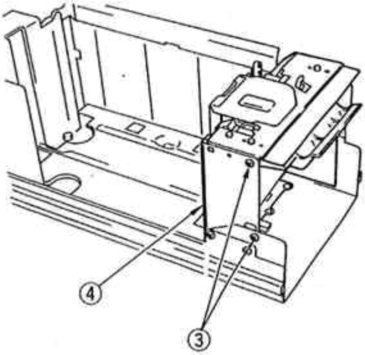


Figure 4-328 (left)

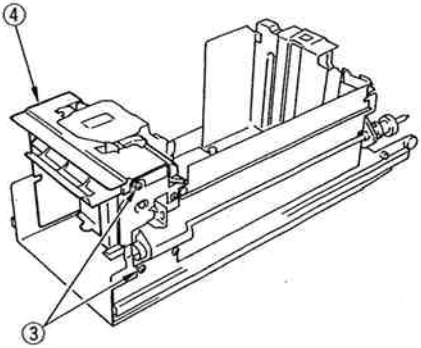


Figure 4-329 (right)

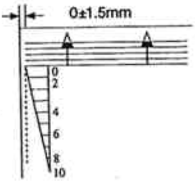


Figure 4-330

C. Cassette and Right Deck Pick-Up Assembly

1. Removing the Pick-Up Assembly from the Copier

1) Slide out the paper deck and the cassette from the appropriate holder.
2) Open the upper right door and the lower right door.

> **Caution:**
> You may not be able to remove the pick-up assembly if you try to remove it without first removing the cassette and the paper deck because of the lifter.

3) Remove the mounting screw ① and the connector cover ②; then, disconnect the connector.
4) Remove the two mounting screws ③, and remove the pick-up assembly ④.

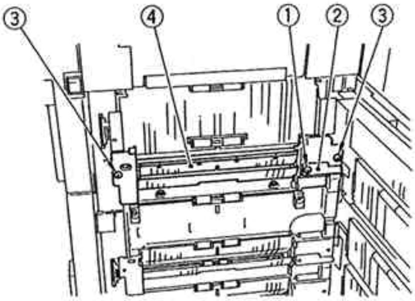


Figure 4-331

2. Removing the Pick-Up Roller

1) Remove the pick-up assembly from the copier.
2) Remove the two stop rings ① from the outside, and remove the pick-up roller ②.

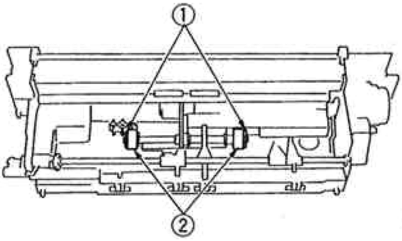


Figure 4-332

■ Orientation of the Pick-Up Roller

Install the pick-up roller by reversing the steps used to remove it with the following in mind:

- The front and rear pick-up rollers are not interchangeable.
- The collar of the front pick-up roller is gold.

When installing the pick-up roller ① to the pick-up assembly, be sure that the round marking ② on the side of the roller and the round marking ③ on the collar (gold) are toward the front of the machine.

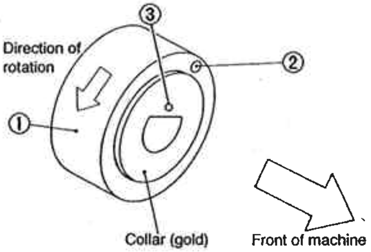


Figure 4-333

- The collar of the pick-up roller at the rear is silver. When installing the pick-up roller ④ to the pick-up assembly, be sure that the round marking ⑤ of the collar (silver) is toward the rear.

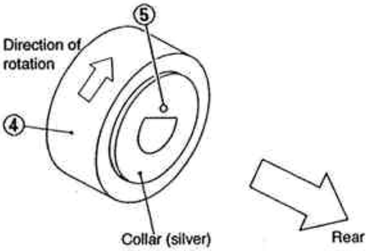


Figure 4-333a

3. Removing the Feeding Roller

1) Remove the pick-up assembly from the copier.
2) Remove the stop ring ① from the front of the feeding roller.
3) Remove the stop ring ② at the front and the pick-up roller ③; then, remove the feeding roller ⑤ together with the timing belt ④.

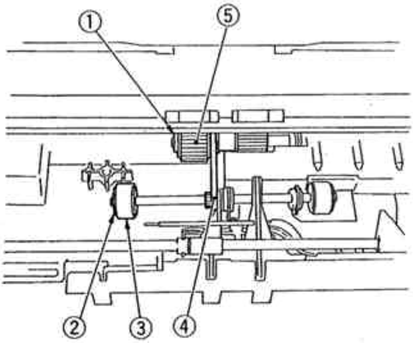


Figure 4-334

4. Removing the Separation Roller

1) Remove the pick-up assembly from the copier.
2) Remove the two mounting screws ①, and remove the feeding guide plate ②; then, remove the open/close guide ③.

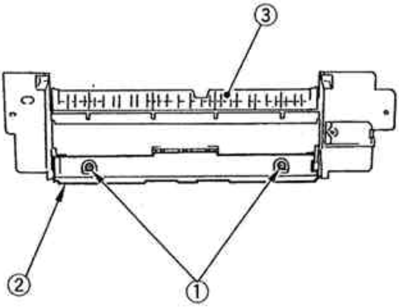


Figure 4-335

3) Remove the two mounting screws ④, and remove the separation roller assembly ⑤ from the joint.

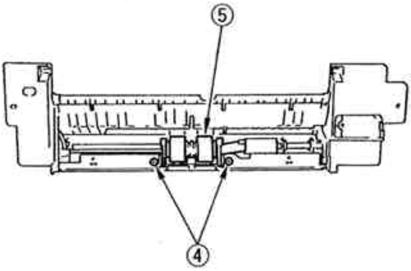


Figure 4-336

4) Remove the separation roller ⑥ from the separation roller shaft mount.

Caution:
Take care not to drop the pin from the roller.

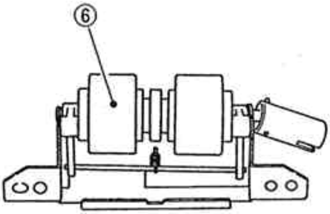


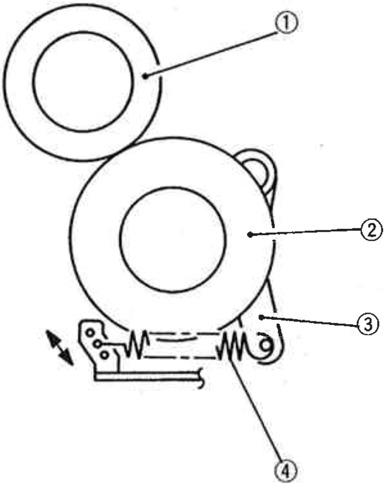
Figure 4-337

Caution:
The urethane sponge used is pink immediately after foaming and changes to yellow as time passes, faster if exposed to light; it changes from pink to orange and to yellow, showing the general characteristics of urethane sponge; however, such discoloration will not lower its physical properties (performance). Keep in mind that the same type of sponge can take on different colors.

5. Adjusting the Separation Roller Pressure

If double feeding or pick-up failure occurs during pick-up, adjust the position of the pressure spring of the separation roller:

- If double feeding occurs, move the position of the spring hook on side A.
- If pick-up failure occurs, move the spring hook on side B.



① Feeding roller	③ Locking lever
② Separation roller	④ Pressure spring

Figure 4-338

6. Orientation of the Separation Roller

Keep the following in mind when replacing the separation roller:

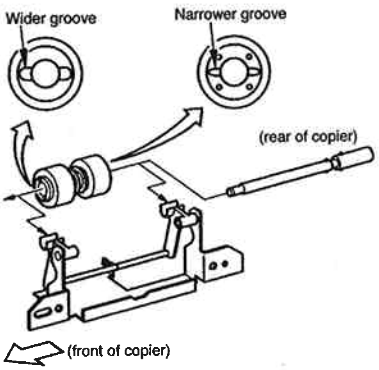


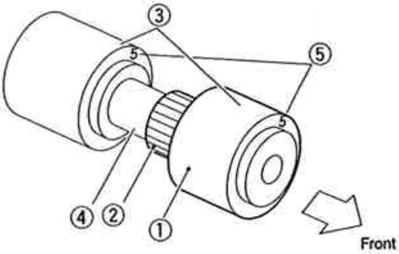
Figure 4-338a

Caution:
If installed in the wrong orientation, the separation roller will interfere with the locking washer.

7. Orientation of the Feeding Roller of the Cassette/Deck Pick-Up Assembly

When installing the feeding roller to the cassette/deck pick-up assembly, install it so that the belt pulley ② is at the front of the copier.

When installing the feeding roller ③ to the feeding roller shaft ④, be sure so that the marking '5' ⑤ is toward the front.



① Feeding roller assembly	③ Feeding roller
② Belt pulley	④ Feeding roller shaft
	⑤ Marking (roller)

Figure 4-338b

8. Position of the Pick-Up Roller Releasing Solenoid of the Cassette/Deck

Adjust the position of the solenoid so that the left end of the right solenoid arm is 57.2 ±0.5 mm from the center of the hole A in the solenoid mount as indicated in Figure 4-338b.

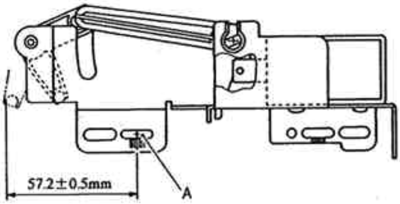


Figure 4-338c

D. Left Deck Pick-Up Assembly

1. Removing the Pick-Up Assembly from the Copier

1) Remove the paper deck (left, right).
2) Slide out the holding tray feeding assembly about 10 cm to the front.
3) Remove the screws ① (one each) from the two positioning pins, and remove the two positioning pins ②; then, remove the left deck pick-up assembly ③.

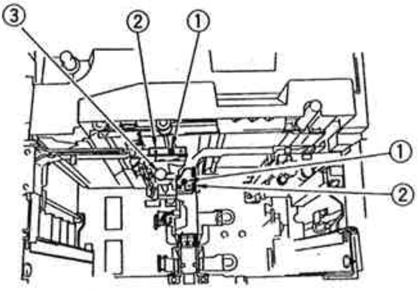


Figure 4-339

> **Caution:**
> When installing the left deck pick-up assembly to the copier, slide the holding tray feeding assembly slightly to the front.
> Pay attention to the engagement of the gears.

2. Removing the Pick-Up Roller

1) Remove the left deck pick-up assembly from the copier.
2) Remove the front and rear stop rings ① (1 each), and remove the pick-up roller ②.

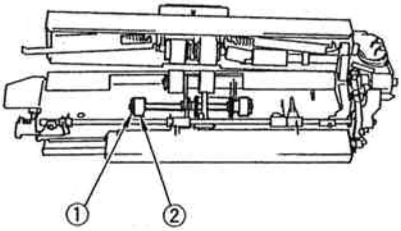


Figure 4-340

■ Installing the Pick-Up Roller
Install the pick-up roller by reversing the steps used to remove it with the following in mind:

- The front and rear pick-up rollers are not interchangeable.
- The collar of the front pick-up roller is gold.

When installing the pick-up roller ① to the pick-up assembly, be sure that the round marking ② on the side of the roller and the round marking ③ on the collar (gold) are toward the front of the machine.

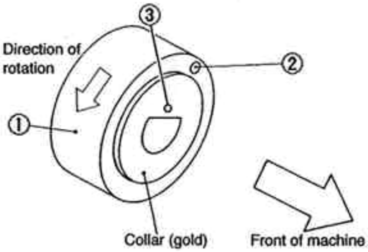


Figure 4-341

- The collar of the pick-up roller at the rear of the copier is silver. When installing the pick-up roller ④ to the pick-up assembly, be sure so that the round marking ⑤ on the collar (silver) is toward the rear of the machine.

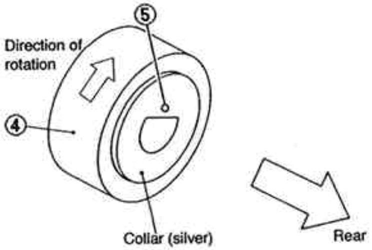


Figure 4-341a

3. Removing the Feeding Roller

1) Remove the left deck pick-up assembly from the copier.
2) Remove the stop ring ①.
3) Remove the pick-up roller ② at the front, and remove the feeding roller ④ together with the timing belt ③.

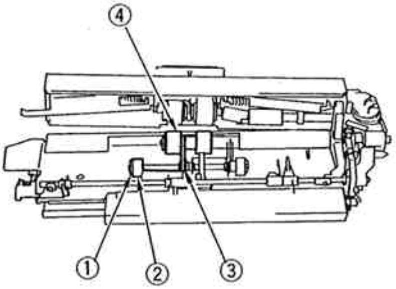


figure 4-342

4. Removing the Separation Roller

1) Remove the left deck pick-up assembly from the copier.
2) Remove the mounting screw ①, and remove the separation roller assembly ② from the joint.

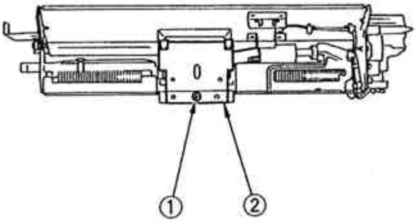


Figure 4-343

3) Remove the separation roller ③ from the separation roller shaft support mount.

Caution:
Take care not to drop the pin from the roller.

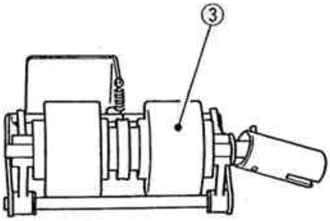


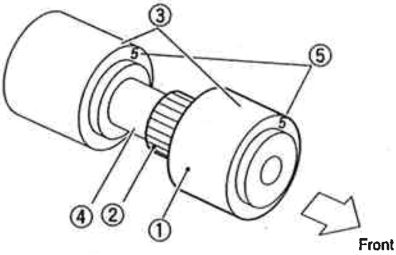
Figure 4-344

Caution:
The urethane sponge used is pink immediately after foaming and changes to yellow as time passes, faster if exposed to light; it changes from pink to orange and to yellow, showing the general characteristics of urethane sponge; however, such discoloration will not lower its physical properties (performance). Keep in mind that the same type of sponge can take on different colors.

5. Orientation of the Feeding Roller in the Left Deck Pick-Up Assembly

When installing the pick-up roller assembly ① to the left deck pick-up assembly, be sure so that the belt pulley ② is toward the front of the copier.

When installing the feeding roller ③ to the feeding roller shaft ④, be sure that the marking '5' ⑤ is toward the rear of the copier.



① Feeding roller assembly	③ Feeding roller
② Belt pulley	④ Feeding roller shaft
	⑤ Marking (roller)

Figure 4-345

E. Pick-Up Vertical Path Roller Assembly

1. Removing the Pick-Up Vertical Path Roller Assembly

1) Open the upper right door and the lower right door.
2) Remove the right deck pick-up assembly/1st cassette pick-up assembly.
3) Remove the two mounting screws ①, and disconnect the connector; then, remove the pick-up vertical path roller assembly ②.

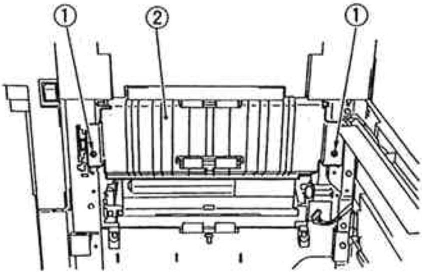


Figure 4-346

F. Registration Feeding Assembly

1. Construction

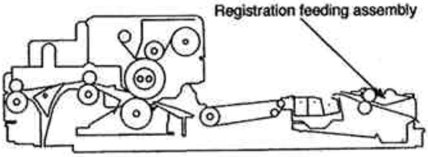


Figure 4-347

2. Removing the Registration Feeding Assembly

1) Open the front cover, and slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover, and remove the transfer/separation charging assembly.
3) Remove the two mounting screws ①, and remove the right rail support plate ②; then, remove the registration feeding assembly pressure spring ③.

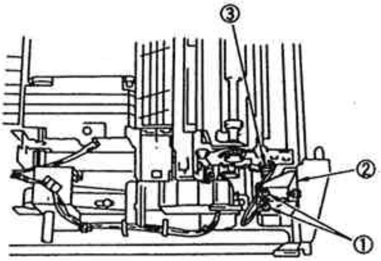


Figure 4-347a

4) Remove the E-ring ④, and push in the rotating shaft ⑤ inside the machine to remove the shaft.
5) Disconnect the connector ⑥, and remove the registration feeding assembly ⑦ from the fixing/feeding unit.

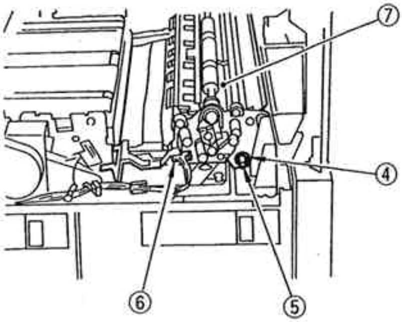


Figure 4-348

3. Removing the Registration Roller (upper rubber)

1) Loosen the two set screws ① on the stopper of the electromagnetic clutch at the rear.
2) Remove the spring ②, E-ring ③, spacer ④, bushing ⑤, and bearing ⑥.

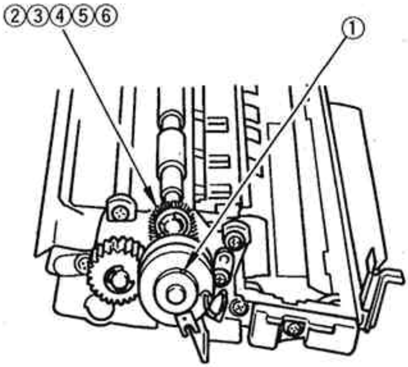


Figure 4-349

3) Remove the spring ⑦, E-ring ⑧, spacer ⑨, and bearing ⑩, and bushing ⑪.
4) Remove the pre-transfer upper front guide ⑫ and remove the registration roller (upper rubber roller) ⑬.

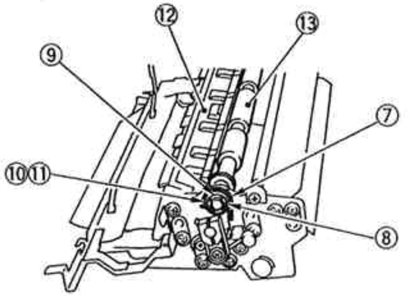


Figure 4-350

G. Feeding Assembly

1. Construction

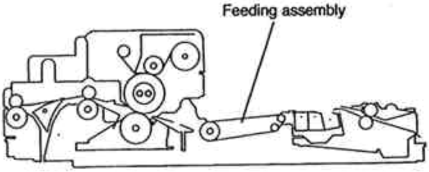


Figure 4-351

4. Removing the Fixing/Feeding Unit

1) Remove the front door, open the hopper assembly, and remove the power supply switch assembly cover; then, close the hopper assembly.
2) Slide out the fixing/feeding unit.
3) Remove the left and right mounting screws ① (1 each), and remove the fixing/feeding unit stopper ②.

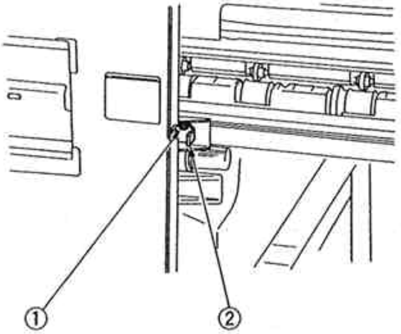


Figure 4-352 (left stopper)

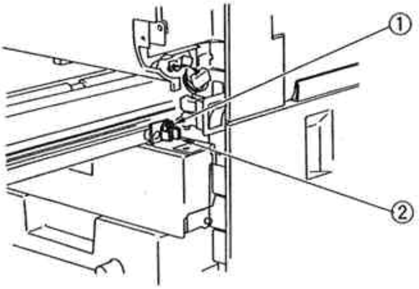


Figure 4-353 (right stopper)

4) Lift the fixing/feeding unit off the copier.

Caution:
Take care. The fixing/feeding unit weighs about 15 kg.

5. Removing the Feeding belt

1) Lift the fixing/feeding unit off the copier.
2) Remove the fixing/feeding front cover.
3) Remove the E-ring ①, spacer ②, and bearing ③ at the front.

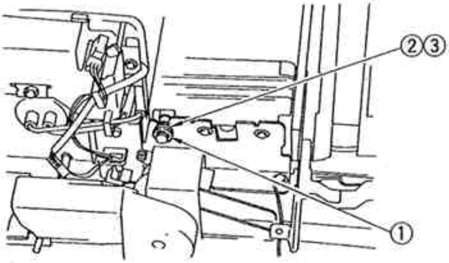


Figure 4-354

4) Remove the E-ring ③ and two mounting screws ④ at the rear.

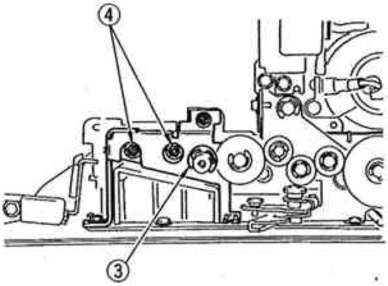


Figure 4-355

5) Remove the E-ring, gear ⑥, and pin ⑦ at the rear.
6) Remove the E-ring ⑧, spacer ⑨, and bearing ⑩ at the rear.

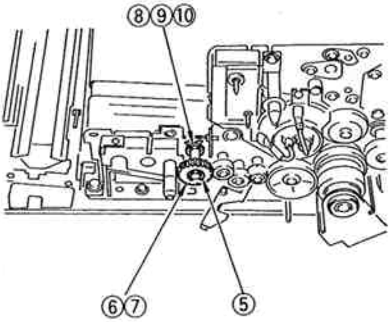


Figure 4-356

7) Remove the two mounting screws ⑪ at the front and the rear; then, remove the feeding belt unit ⑫.

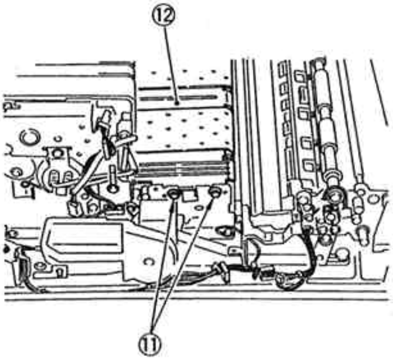


Figure 4-357 (front)

8) Remove the feeding drive shaft ⑬ and the feeding roller shaft ⑭; then, remove the feeding belt.

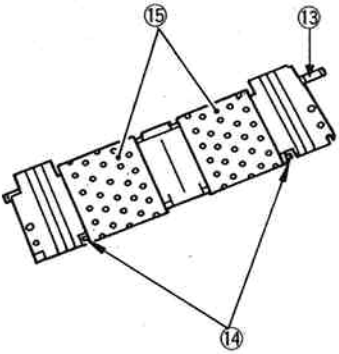
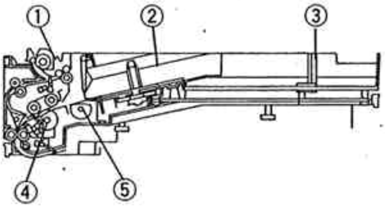


Figure 4-358

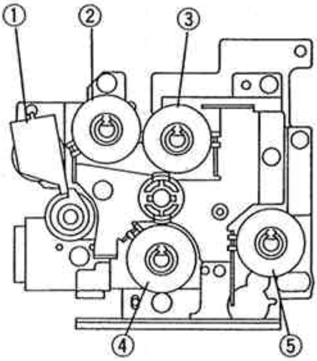
H. Holding Tray Assembly

1. Construction



① Holding tray inlet assembly
② Side guide plate
③ Y direction guide plate
④ Re-pick up assembly
⑤ Re-pick up roller

Figure 4-359 (cross section)



① Holding tray re-pick up roller (D-cut roller) solenoid (SL6)
② Holding tray reversing clutch (CL4)
③ Holding tray forward clutch (CL5)
④ Holding tray separation clutch (CL6)
⑤ Holding tray registration clutch (CL3)

Figure 4-359a (rear view)

2. Removing the Holding Tray Assembly from the Copier

1) Open the front cover.
2) Remove the fixing/pre-feeding cover.
3) Slide out the holding tray assembly to the front and out of the copier.

3. Removing the Holding Tray Re-Pick Up Assembly

1) Slide out the holding tray assembly to the front and out of the copier.
2) Remove the three mounting screws 1 (front).

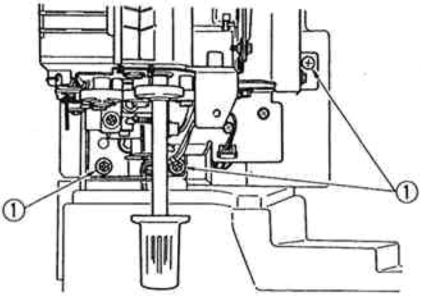


Figure 4-360 (front)

3) Remove the three mounting screws ② (front), and disconnect the two connectors ③ while lifting the holding tray re-pick up assembly; then, remove the holding tray re-pick up assembly ④.

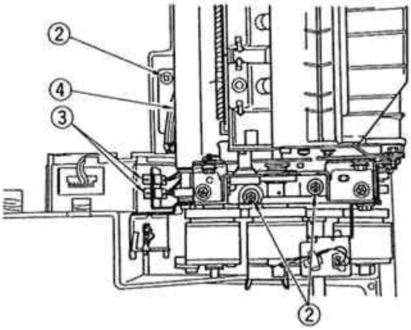


Figure 4-361 (rear)

4. Removing the Holding Tray Registration Paper Sensor

1) Open the front cover.
2) Slide out the holding tray assembly to the front and out of the copier.
3) Remove the holding tray re-pick up assembly.
4) Remove the two mounting screws, and remove the registration paper sensor assembly.

5. Removing the Re-Pick Up Roller

1) Open the front cover.
2) Slide out the holding tray assembly to the front.
3) Remove the mounting screw (① each), and remove the two pick-up rollers ②.

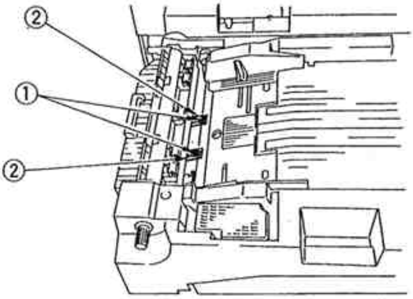


Figure 4-362

6. Removing the Holding Tray Driver PCB

1) Open the front cover.
2) Slide out the holding tray to the front and then out of the copier.
3) Turn over the holding tray assembly.
4) Remove the two mounting screws, and remove the holding tray driver PCB cover.
5) Remove the two mounting screws, and disconnect the nine connectors (J201, J202, J203, J204, J205, J207, J208, J209, J210); then, remove the holding tray driver PCB.

7. Removing the Holding Tray Y Motor

1) Slide out the holding tray assembly to the front, and remove the copier.
2) Turn over the holding tray assembly.
3) Remove the two mounting screws ①, and remove the right rail ②.

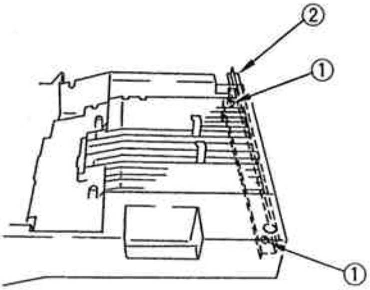


Figure 4-363

4) Turn over the holding tray assembly.
5) Remove the E-ring ③, flange ④, and belt ⑤.

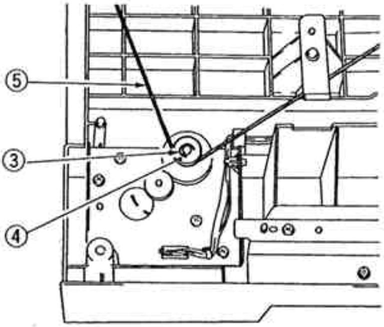


Figure 4-364

6) Remove the two mounting screws ⑥, and turn over the holding tray Y motor assembly ⑦; then, disconnect the connector 1.

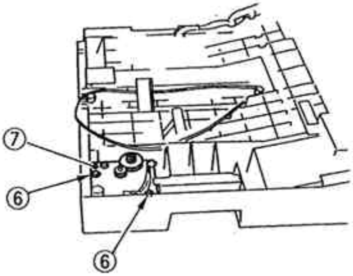


Figure 4-365

7) Remove the two mounting screws, and remove the holding tray Y motor.

8. Removing the Y Motor Home Position Sensor

1) Slide the holding tray to the front and out of the copier.
2) Remove the right rail, and turn over the holding tray.
3) Remove the mounting screw, and remove the Y motor home position sensor assembly.

9. Removing the Holding Tray Inlet Assembly

1) Remove the mounting screw ①, and remove the inlet assembly upper front cover ②.

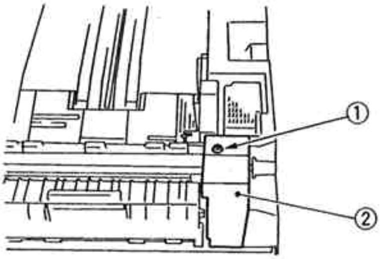


Figure 4-366

2) Remove the mounting screw ③, and remove the inlet assembly upper rear cover ④.

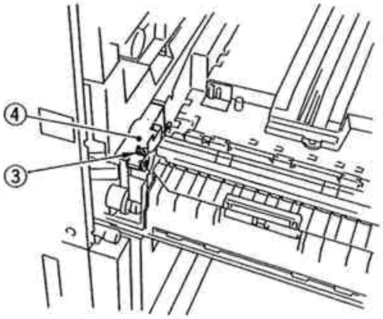


Figure 4-367

3) Remove the two mounting screws ⑤, and remove the inlet assembly ⑥.

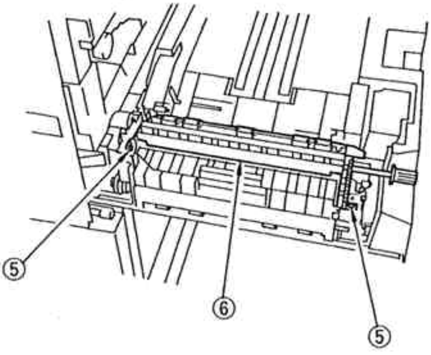


Figure 4-368

10.Removing the Feeding Roller/Separation Belt Assembly

1) Slide up the holding tray assembly to the front.
2) Remove the holding tray inlet assembly.
3) Remove the mounting screw ①.

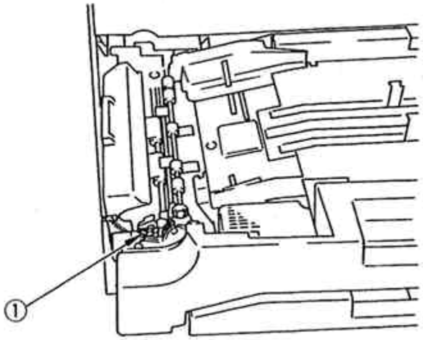


Figure 4-369

4) While opening the left cover ②, remove the feeding roller/separation belt assembly ③.

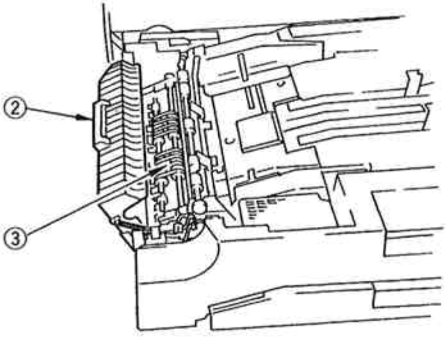


Figure 4-370

11. Removing the Feeding Roller

1) Remove the feeding roller/separation belt assembly.
2) Remove the stop ring ① and the bushing ② at the front.

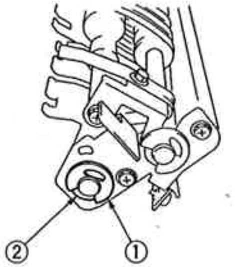


Figure 4-371

3) Remove the stop ring ③, gear ④, and bushing ⑤ at the rear.
4) Remove the roller ⑥ from the feeding roller assembly.

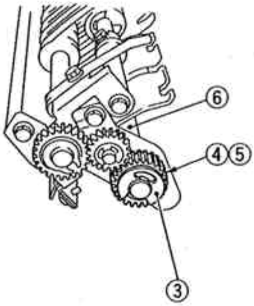


Figure 4-372

12. Removing the Separation Belt Assembly

1) Remove the feeding roller/separation belt assembly.
2) Remove the stop ring ① and the busing ② at the front.

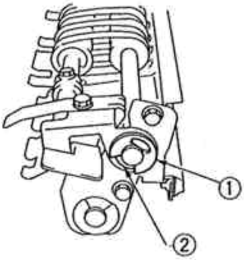


Figure 4-373

3) While lifting the front of the separation belt assembly, shift it to the rear to remove.
4) Remove the belt from the separation belt assembly.

13. Adjusting the Pressure of the Separation Roller of the Holding Tray

Turn the separation roller adjusting roll so that the gap to the shaft is 32.7 ±0.1 mm.

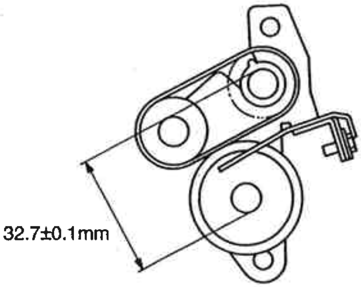


Figure 4-373a

14.Position of the Holding Tray Paper Deflecting Plate Drive Solenoid

Install the solenoid so that its stroke (gap between the rubber silencer and the end of the solenoid) is 5.6 ±0.3 mm.

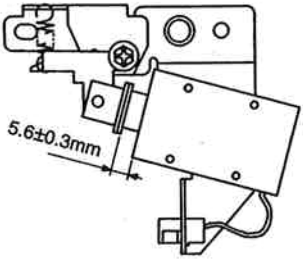


Figure 4-374

15.Removing the Side Guide Plate

1) Mark the position of the side plate assembly with a scribe. (See Figure 4-383.)
2) Remove the two mounting screws ①, and disconnect the two connectors; then, remove the side guide plate assembly ②.

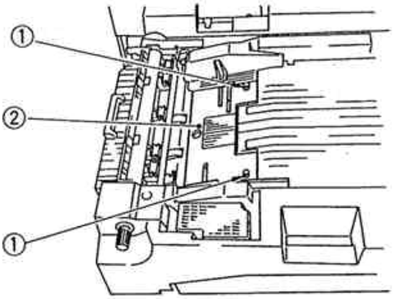


Figure 4-375

16.Removing the Holding Tray X Motor

1) Remove the side guide plate assembly.
2) Remove the mounting screw, and remove the motor cover.
3) Remove the two mounting screws ①, and disconnect the connector; then, remove the motor ②.

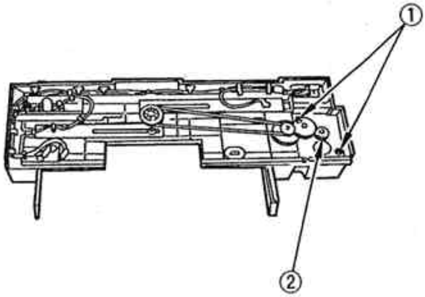


Figure 4-376

17.Removing the Holding Tray Re-Circulating Motor

1) Remove the side guide plate assembly.
2) With the paper jogging guide plate fully open, mark the position of the paper guide plate with a scribe. (See Figure 4-382.)
3) Remove the three mounting screws ①, and disconnect the connector ②; then, remove the rear guide plate assembly ③.

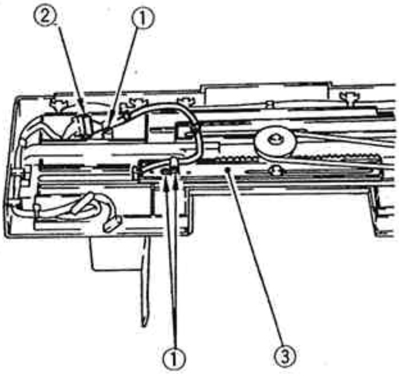


Figure 4-377

4) Remove the mounting screw ④, and remove the motor assembly ⑤.

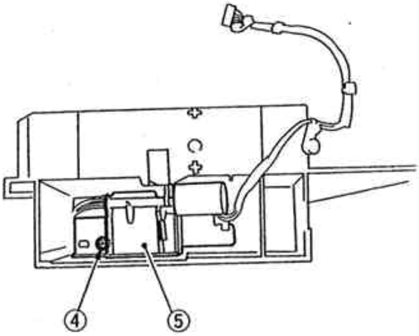


Figure 4-378

18.Removing the Holding Tray Paper Jogging Solenoid

1) Remove the side guide plate.
2) With the paper jogging guide plate fully open, mark the position of the paper guide plate assembly with a scribe.
3) Remove the three mounting screws ①, and disconnect the connector ②; then, remove the front guide plate assembly ③.

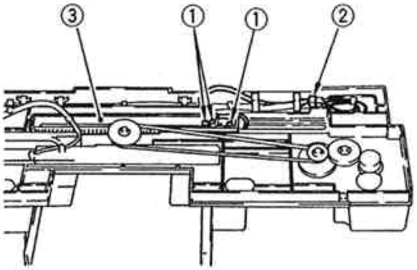


Figure 4-379

4) Remove the mounting screw ④, and remove the cover ⑤.

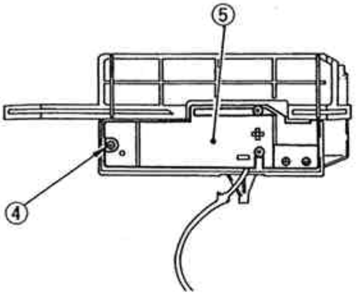


Figure 4-380

5) Remove the two mounting screws ⑥, two grip rings ⑦, and spring pin ⑧; then, remove the solenoid ⑨.

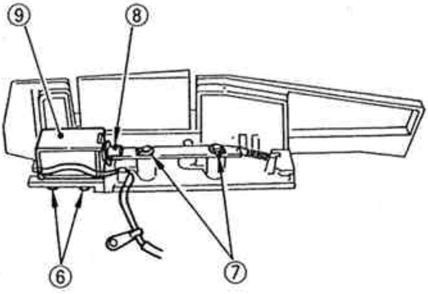


Figure 4-381

19.Installing the Holding Tray Paper Jogging Guide Plate Assembly

Mark the position of the paper jogging guide plate assembly with a scribe, and install it along the marking.

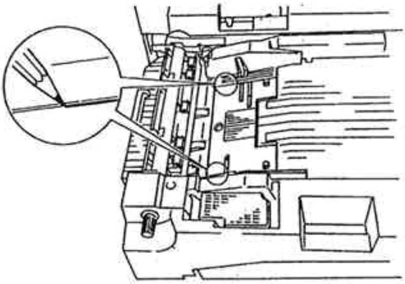


Figure 4-382

20.Installing the Holding Tray Assembly Side Guide Plate Assembly

Mark the position of the side guide plate assembly with a scribe, and install it along the marking.

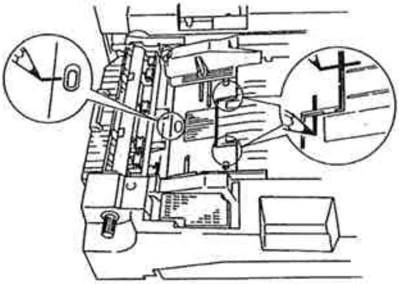


Figure 4-383

21.Attaching the Timing Belt for the Holding Tray Assembly Paper Jogging Guide Plate

Butt the rack plate of the paper jogging guide plate against section A (open state), and attach the timing belt.

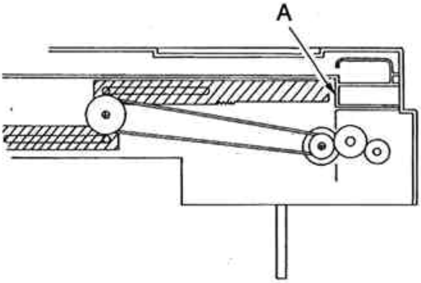


Figure 4-384

22.Position of the Holing Tray Paper Jogging Solenoid

When installing the solenoid, be sure that the stroke (between the rubber silencer and the end of the solenoid) is 1.5 ±0.3 mm.

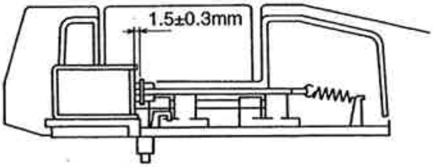


Figure 4-385

I. Holding Tray Feeding Assembly

1. Removing the Holding Tray Feeding Assembly from the Copier

1) Open the front cover, and slide out the holding tray feeding assembly to the front.
2) Remove the three mounting screws ①, and remove the holding tray feeding front cover ②.

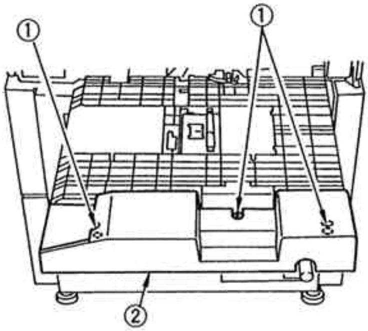


Figure 4-386

3) Remove the five mounting screws ③ and the two metal fixings ④; then, remove the holding tray feeding assembly ⑤ from the rail.

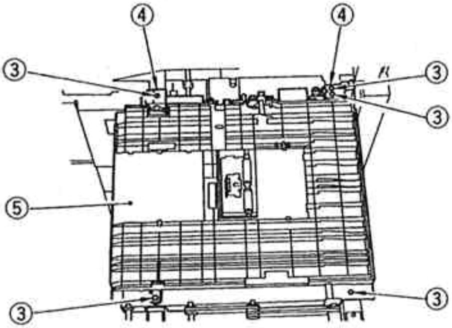


Figure 4-387

2. Removing the Sensor from the Holding Tray

1) Open the front cover, and slide out the holding tray feeding assembly to the front.
2) Remove the mounting screw ① and the metal fixing ②; then, remove the holding tray feeding sensor cover ③ from the bottom of the holding tray feeding assembly.

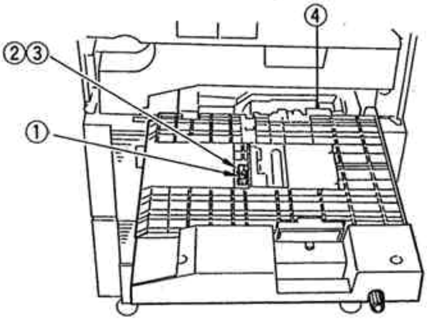


Figure 4-388

Caution:
Do not open the holding tray upper feeding guide more than it is designed to open; otherwise, the stopper ④ will be damaged.

3) Remove the two mounting screws, and disconnect the connector; then, remove the sensor assembly from the holding tray feeding assembly.

Caution:
When installing the holding tray feeding sensor cover, be sure that the two springs are in the bosses behind the holding tray upper feeding guide.

J. Delivery Assembly

1. Construction

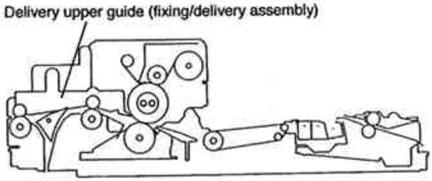


Figure 4-389

2. Removing the Delivery Upper Guide (fixing delivery assembly)

1) Open the front cover, and slide out the fixing/feeding unit to the front and then out of the copier.
2) Remove the fixing/feeding front cover.
3) Remove the spring, and remove the mounting screw ②; then, pull out the pin ③, and remove the delivery upper guide ④.

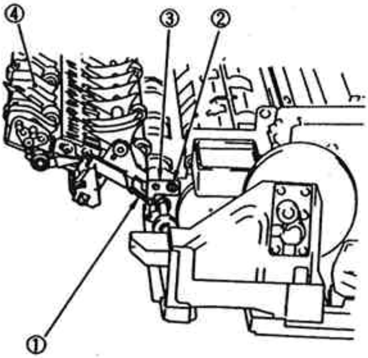


Figure 4-390

3. Removing the Fixing/Feeding Locking Assembly

1) Slide out the fixing/feeding unit to the front and out of the copier.
2) Remove the two mounting screws ① and the E-ring ②; then, disconnect the connector ③, and remove the fixing/feeding locking assembly ④.

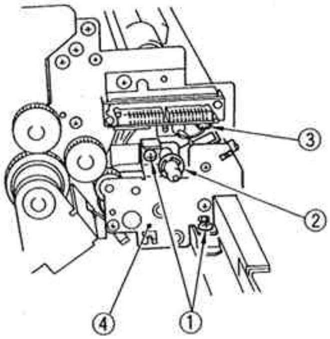


Figure 4-391

4. Removing the External Delivery Roller

1) Slide the fixing/feeding unit to the front and out of the copier.
2) Remove the fixing/feeding front cover.
3) Remove the two mounting screws ①, and remove the delivery roller guide ②.

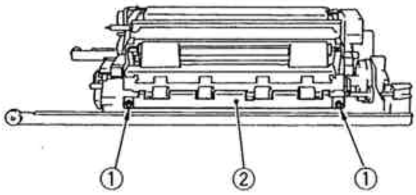


Figure 4-392

4) Remove the fixing/feeding locking assembly.
5) Remove the two E-rings ③, gear ④, torque limiter ⑤, and bushing ⑥ at the front.
6) Remove the E-ring ⑦ and the bushing ⑧ at the rear; then, remove the external delivery roller ⑨.

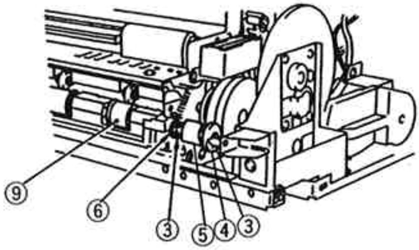


Figure 4-393 (front)

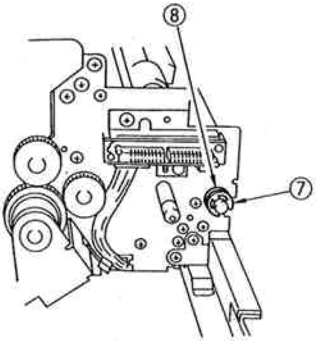


Figure 4-393a (rear)

5. Removing the External Delivery Sensor and the Internal Delivery Sensor

1) Remove the external delivery roller.
2) Remove the two mounting screws ①, external delivery sensor assembly, and internal delivery sensor assembly ②.

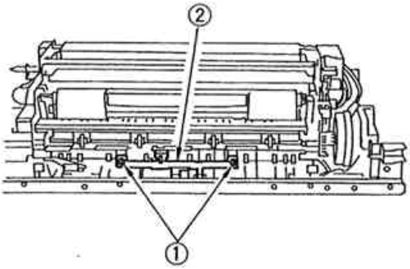


Figure 4-394

6. Removing the Fixing Assembly Outlet Paper Sensor Assembly

1) Slide out the fixing /feeding unit to the front, and remove the front cover and the upper fixing unit. (See p. 4-90)
2) Remove the lower fixing separation claw assembly. (See p. 4-96.)
3) Remove the mounting screw ①, and remove the fixing assembly outlet paper sensor assembly ② to the right; then, disconnect the connector ③ (J108), and remove the sensor.

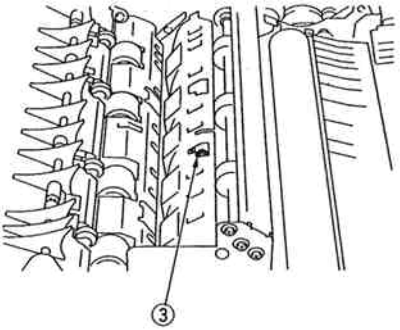


Figure 4-395

7. Removing the Internal Delivery Roller

1) Open the front door, and slide out the fixing/feeding unit to the front and out of the copier.
2) Remove the fixing/feeding front cover.
3) Remove the fixing upper unit. (See p. 4-90.)
4) Remove the fixing lower separation claw assembly. (See p. 4-96.)
5) Remove the E-ring ①, gear ②, and parallel pin ③ at the front.
6) Remove the E-ring ④ and bushing ⑤.

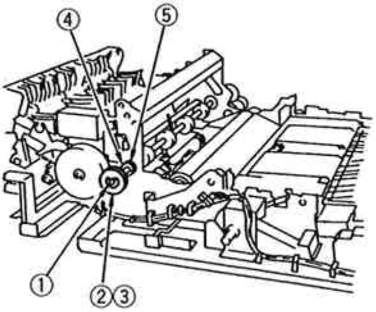


Figure 4-396

7) Remove the E-ring ⑥ and the gear at the rear.
8) Remove the E-ring ⑧ and the bushing ⑨.
9) Remove the fixing assembly outlet paper sensor assembly. (See p. 4-66.)

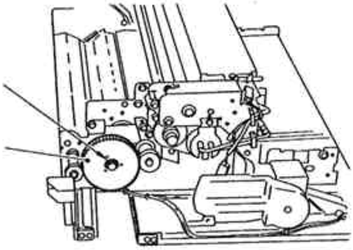


Figure 4-397

10) Remove the internal delivery roller.

IV. EXPOSURE SYSTEM

A. Scanning Lamp

1. Removing the Scanning Lamp

1) Remove the copyboard glass retainer, and remove the copyboard glass.
2) Move the No. 1 mirror mount to the center.
3) Remove the two mounting screws ①, and remove the reflecting shade ② and the support plate ③.

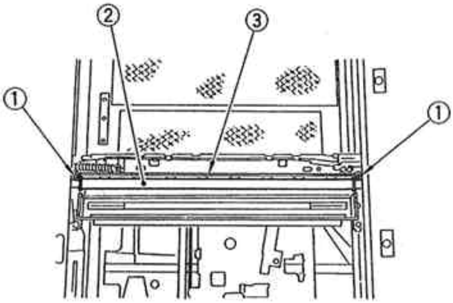


Figure 4-401

4) While pushing the rear electrode block to the rear with a finger, remove the scanning lamp ④.

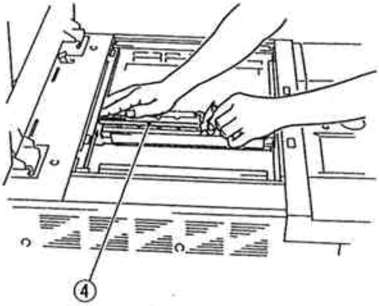


Figure 4-402

Caution:

1. Do not work until the surface of the scanning lamp has cooled.
2. Do not leave fingerprints on the surface of the scanning lamp.
3. If the surface of the scanning lamp is soiled, dry wipe it.
4. Do not leave fingerprints on the reflecting shade.
5. Do not deform the deflecting shade.
6. When installing the lens hood, fit the boss on the lens hood into the cut-off in the rail at the front; then, engage the hook at the rear while turning the lens hood slightly to the right.

2. Removing the Thermal Fuse

1) Remove the copyboard glass retainer, and remove the copyboard glass.
2) Remove the control panel.
3) Remove the scanning lamp.
4) Move the No. 1 mirror mount to the right end.
5) Remove the two mounting screws ①, and remove the thermal fuse ②.

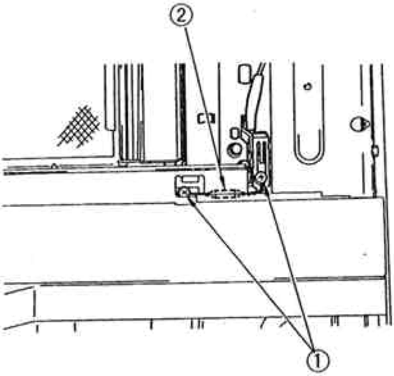


Figure 4-403

B. Standard White Plate Assembly

1) Remove the RDF/copyboard.
2) Remove the rear cover.
3) Remove the two mounting screws ①, and remove the copyboard glass right retaining plate ②.

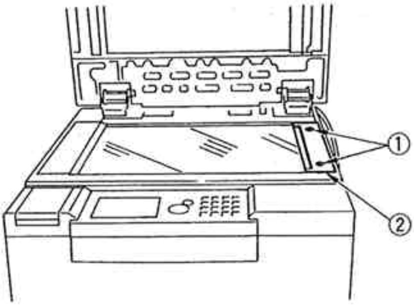


Figure 4-404

4) Remove the two stepped screws ③ (M3x3), and remove the standard white cover ④.

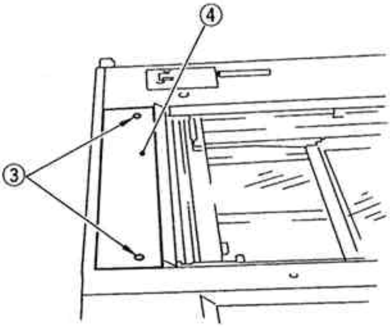


Figure 4-405

5) Remove the six mounting screws ③, and remove the RDF mount cover ④.
6) Remove the two mounting screws ⑤, and remove the rear top cover ⑥.

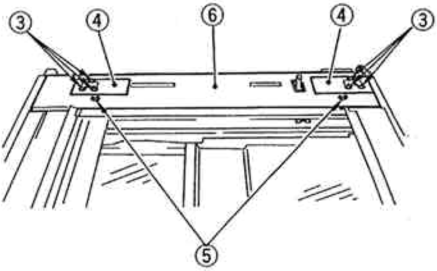


Figure 4-406

7) Remove the control panel.
8) Remove the two mounting screws ⑦, and remove the standard white plate ⑧.

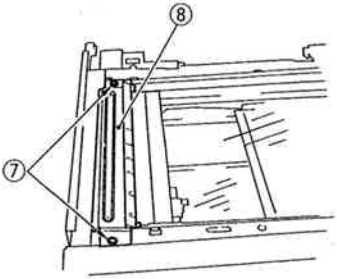


Figure 4-406a

C. Pre-Exposure Lamp Unit

1. Removing the Pre-Exposure Lamp Unit

1) Open the front door, and slide out the hopper assembly; then, slide out the fixing/feeding unit.
2) Remove the process unit. (See p. 4-3.)
3) Remove the primary charging assembly and the pre-transfer charging assembly.
4) Remove the blank exposure lamp assembly.
5) Remove the two mounting screws ①, and remove the blank exposure assembly rail stay ②.

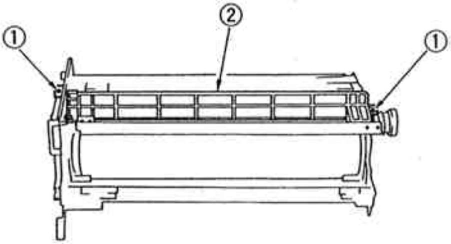


Figure 4-407

6) Disconnect the connector ①, and remove the two mounting screws ②; then, remove the pre-exposure lamp unit ③.

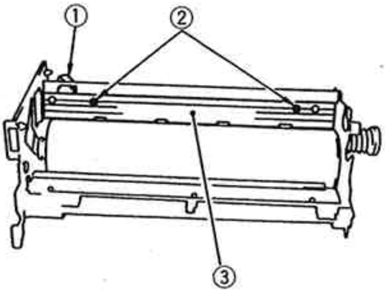


Figure 4-407a

Caution:
When removing the pre-exposure lamp unit, take care so that it will not hit the wire cleaning home position sensor of the primary charging assembly.
Take care not to damage the photosensitive drum.

D. Blank Exposure Lamp Assembly

1. Removing the Blank Exposure Lamp Assembly

1) Open the front door, and slide out the hopper assembly.
2) Disconnect the two connectors ①, and remove the mounting screw ②; then, slide out the blank exposure lamp assembly ③.

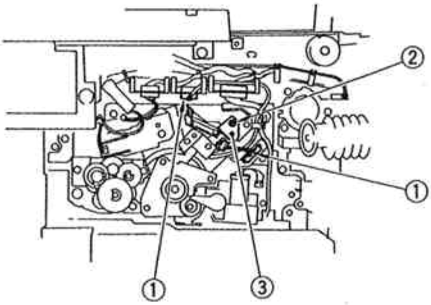


Figure 4-408

Caution:
Take care not to damage the photosensitive drum when removing the blank exposure lamp assembly.

V. CHARGING ASSEMBLY

A. Photosensitive Drum

■ Photosensitive Drum

The NP6050's photosensitive drum is a high-sensitivity amorphous silicon drum, whose sensitivity may lower if the drum or the process unit is not positioned correctly. Keep the following in mind whenever handling the photosensitive drum:

① If you have removed the process unit from the copier or the photosensitive drum from the process unit, keep the photosensitive drum out of light.
To do so, use the photosensitive drum protection sheet, or wrap six or more sheets of A3 or larger copy paper.

② Do not place the process unit or the photosensitive drum near a window or areas subject to direct rays of the sun.

③ Avoid areas subject to high temperature/humidity, low temperature/humidity or rapid changes in temperature and humidity.

④ Avoid areas subject to dust, ammonium gas, or organic solvent gas.

The above points apply equally to the photosensitive drums of other models.

1. Removing the Drum Unit

1) Open the front door, and slide out the hopper assembly.
2) Take out the process unit. (See p. 4-3.)
3) Take out the primary charging assembly and the pre-transfer charging assembly.
4) Remove the blank exposure lamp assembly.
5) Remove the blank exposure assembly rail stay.
6) Remove the three mounting screws ③, and remove the gear plate.

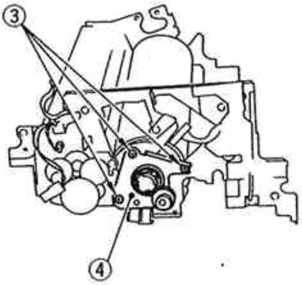


Figure 4-501

7) Remove the two mounting screws ⑤, and remove the front side stay.

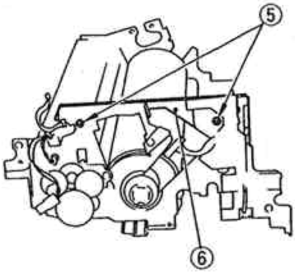


Figure 4-502

8) Holding it as shown, remove the photosensitive drum ⑦.

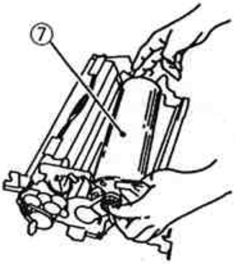


Figure 4-503

Caution:
Remove the photosensitive drum, taking care not to damage it.
You need not remove the bearing at the rear and the gear at the front.

2. Replacing the Drum Heater

1) Remove the photosensitive drum from the process unit.
2) Remove the two mounting screws ①, and remove the flange ② at the front.

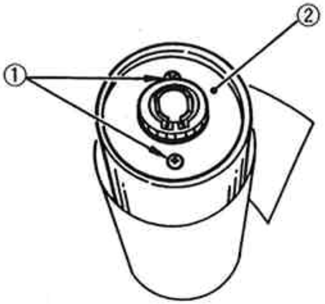


Figure 4-504

> **Caution:**
> After removing the photosensitive drum, wrap about five to six sheets of copy paper or the drum protection sheet kept near the waste toner case around the photosensitive drum to protect the photosensitive drum from dirt and scratches.

3) Pull out the flange from the rear, and remove the drum heater from the photosensitive drum; then, disconnect the connector, and remove the drum heater.

3. Installing the Photosensitive Drum

Install the photosensitive drum by reversing the steps used to remove it, while paying attention not to soil or damage its surface.

B. Potential Sensor Assembly

1. Removing the Potential Sensor Assembly

1) Remove the blank exposure lamp assembly from the copier. (See p. 4-70.)

> **Caution:**
> The potential sensor assembly and the blank exposure lamp assembly are constructed as a single entity.

C. Primary Charging Assembly

1. Removing the Primary Charging Assembly

1) Open the front door, and open the hopper assembly.
2) Loosen the mounting screw ①, and slide up the fixing member ② to fix it in place.
3) Disconnect the connector ③, and remove the primary charging assembly ④.

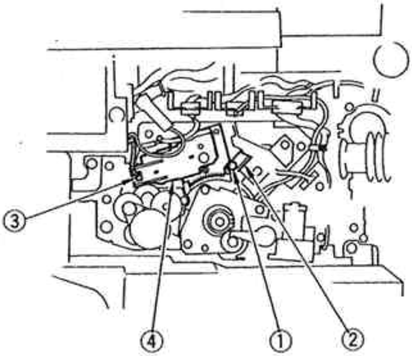


Figure 4-505

D. Pre-Transfer Charging Assembly

1. Removing the Pre-Transfer Charging Assembly

1) Open the front assembly, and slide out the hopper assembly.
2) Remove the mounting screw ①, and disconnect the connector ②; then, remove the pre-transfer charging assembly ③.

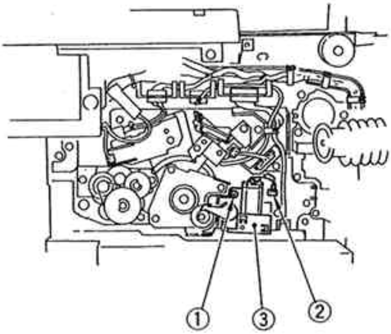


Figure 4-506

E. Transfer/Separation Charging Assembly

1. Removing the Transfer/Separation Charging Assembly

1) Open the front door, and slide out the fixing/feeding unit.
2) Remove the fixing/feeding front cover.
3) Remove the mounting screw ①, and remove the fixing guide ②.

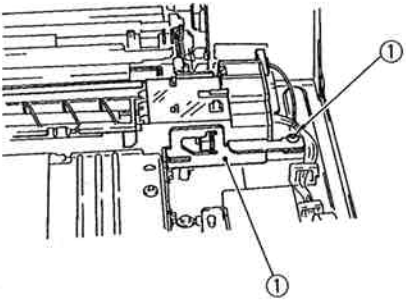


Figure 4-507

4) Disconnect the connector ③, and slide out the transfer/separation charging assembly ④ to the front; then, remove it by lifting it at an angle to the left.

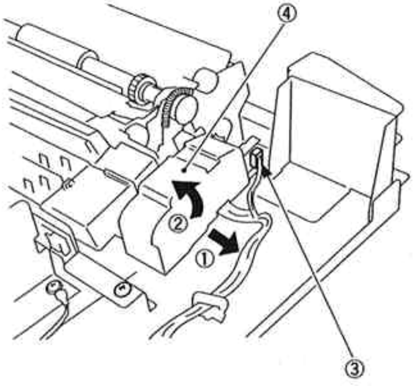


Figure 4-508

2. Installing the Transfer/Separation Charging Assembly

Install the transfer/separation charging assembly by reversing the steps used to remove it with the following in mind:

1) Pick the holder on the screw side of the transfer/separation charging assembly, and move it to the center of the charging assembly.

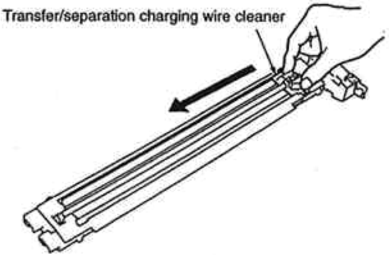


Figure 4-508a

2) Fit the four bosses ① of the transfer/separation charging assembly into the cut-offs of the fixing/feeding unit frame ②.
3) Slide it from the front so that the leaf spring ③ will come into contact with the frame of the transfer/separation charging assembly.

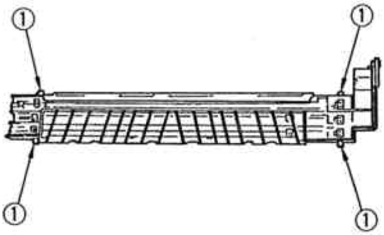


Figure 4-509

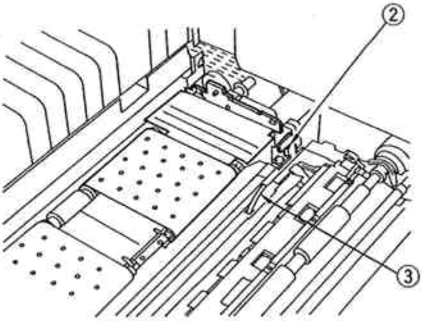


Figure 4-510

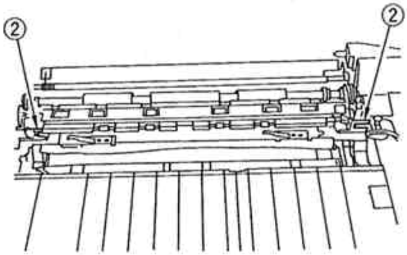


Figure 4-511

4) Install the fixing guide plate ④ with a mounting screw ⑤.

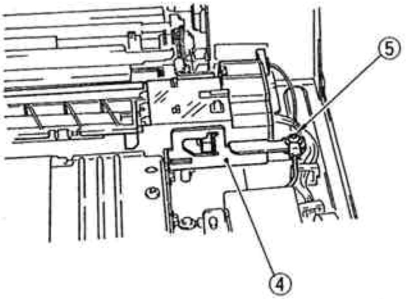
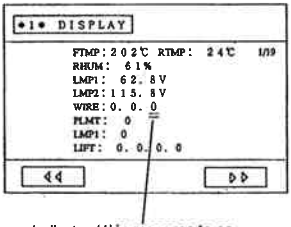


Figure 4-512

Caution:
Make sure that the sensor arm of the transfer/separation charging assembly and the cleaner home position sensor of the charging assembly will come into contact correctly.

5) Execute cleaning of the wire in user mode. (If the surface temperature of the upper fixing roller is 100°C or more, you need not perform this step, as the execution will be automatic.)
6) Slide out the fixing/feeding unit, and check to make sure that the wire cleaner mount is at home position.
7) Check to make sure that the wire cleaning home position error is not indicated in service mode.



```
FTMP：2 0 2℃  RTMP：  2 4℃    1/19
RHUM：  6 1 %
LMP1：  6 2. 8 V
LMP2：1 1 5. 8 V
WIRE：0. 0. 0
PLMT：   0
LMP1：  0
LIFT：  0. 0. 0. 0
```

Indicates '1' in response to an error in the transfer/separation charging assembly.

Figure 4-512a

F. Charging Wire

1. Outline

The primary, pre-transfer, transfer/separation charging wires are located around the photosensitive drum. (The wire diameter is 0.06 mm.)

2. Removing the Primary Charging Assembly Wire Cleaner

1) Hold the wire cleaner, and disengage it with a flat-blade screwdriver.

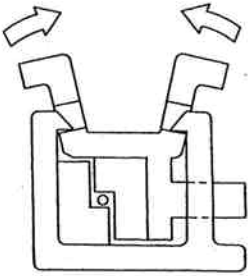


Figure 4-513

3. Installing the Charging Wire

The charging wire (except the gird wire) is installed in the same way for all charging assemblies. (The following cites the primary charging assembly.)

1) Remove the shielding plate (left, right) of the charging assembly.
Be sure to remove the left and right shielding plates individually to prevent deformation of the primary charging assembly. (At the same time, take care not to loosen the mounting screw ① on the left/right shielding plate.)

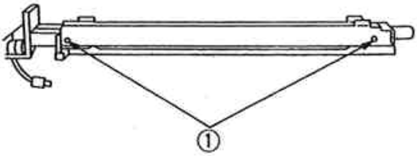


Figure 4-514

2) Remove the wire cleaner.

Caution:
For other assemblies, remove the lid (2 pcs.).

3) Free a length of about 5 cm from a 0.06mm-dia. charging wire reel, and form a loop of about 2 mm in diameter.

Reference:
To form a loop, wind the wire around a hex key once, and twist the hex key three to four times; then, twist the charging wire.

4) Cut the excess end of the twisted charging wire by a nipper or the like.
5) Hook the loop on the stud.

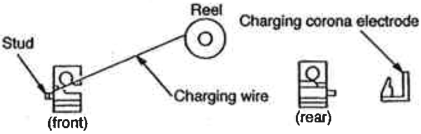


Figure 4-515

6) Hook the charging wire on the charging wire positioner at the rear, and hook the charging wire tension screw on the charging wire where indicated in Figure 4-516; then, twist it.

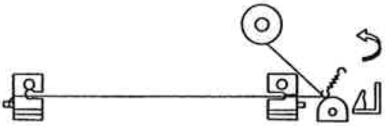


Figure 4-516

7) Cut the excess charging wire with a nipper.
8) Pick the end of the tension spring of the charging wire with tweezers, and hook it on the charging power supply electrode. (In the case of the pre-transfer charging assembly, hook the spring on the pin at the front.)

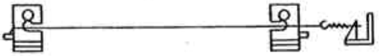


Figure 4-517

Caution:
Make sure of the following:
- The charging wire is not bent or twisted and its gold plating has not peeled.
- The charging wire is in the charging wire positioning V-groove.

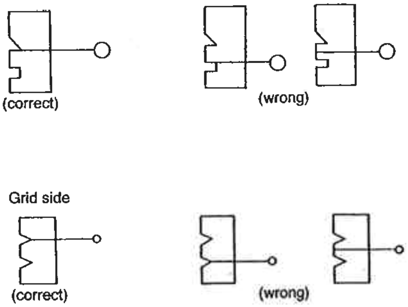


Figure 4-518 Primary Charging Wire

9) Install the cushion to the front of the charging wire. (This does not apply to the primary charging assembly.)
10) Remove the shielding plate (left, right).

Caution:
For other charging assemblies, install the lids (2 pcs.).

11) Install the wire cleaner. (At this time, pay attention to the orientation of the wire cleaner.)
12) Wipe the charging wire with lint-free paper moistened with alcohol.

4. Routing the Grid for the Primary Charging Assembly

1) Loosen the two mounting screws used to fix the shielding plate (left, right).
2) Loosen the three mounting screws used to fix the motor unit in place at the front.

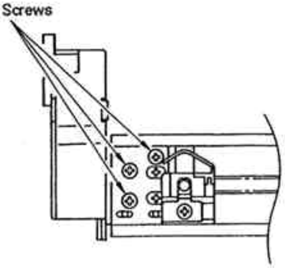


Figure 4-519

3) Loosen the mounting screw, and move it in the direction of the arrow shown in Figure 4-520; then, fix it in place temporarily.

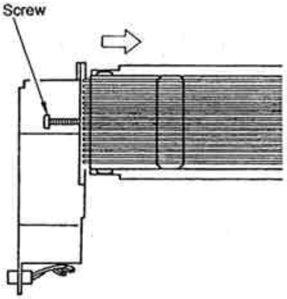


Figure 4-520

4) Free a length of about 5 cm from a 0.1mm-dia. charging wire reel, and form a loop at the end of about 2 mm in diameter.

Reference:
To form a loop, wind the charging wire around the hex key once, turn the hex key three to four times, and twist the wire.

5) Cut the twisted wire (excess) by a nipper.
6) Hook the loop on the stud A shown in Figure 4-521.
7) After having strung the wire for 31 runs, lead it through section B, give it a half turn, and put it between the washer and the motor unit; then, wind it once (clockwise) around the mounting screw, and tighten the mounting screw.

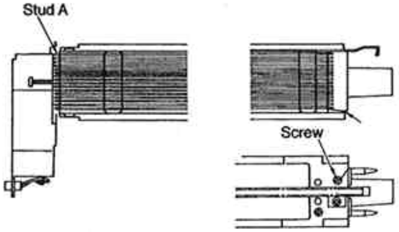


Figure 4-521

8) Cut the excess charging wire with a nipper.
9) Tighten the mounting screw you loosened in step 3).
   Keep tightening the screw until the tension of the grid wire is even.
   Pay attention to avoid deformation of the charging assembly; i.e., try to tighten the mounting screw (front) on the left/right shielding plate.
10) Tighten the mounting screw loosened in steps 1) and 2).
11) Wipe the grid wire with lint-free paper moistened with alcohol.

Caution:
1. Check to make sure that the grid wire is not broken or twisted.
2. Check to make sure that the wire is run at even intervals, i.e., it is in the groove of the block.

5. Adjusting the Height of the Charging Wire

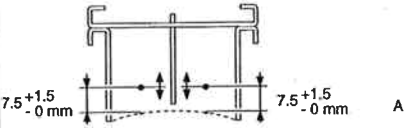
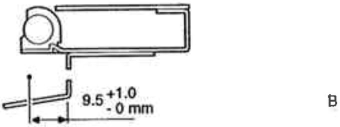
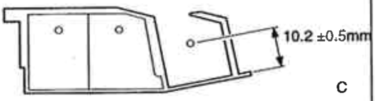
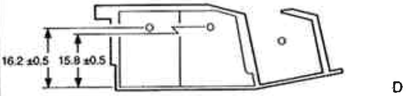
Assembly	Height of charging wire	Range
Primary		± 1mm
Pre-transfer		No adjustment mechanism
Transfer		± 2mm
Separation		No adjustment mechanism

Table 4-522

Reference:

The height (position) of the primary and transfer charging assemblies may be adjusted by turning the screw behind the charging assembly. A full turn changes the position of the charging wire by about 0.7 mm.

VI. DEVELOPING ASSEMBLY

A. Developing Assembly

Caution:

The NP6050's developing assembly is not equipped with a protection cover, requiring you to be careful not to damage the developing assembly after removing the developing assembly.
Be sure not to install the developing locking assembly if the developing assembly is not set in the copier. The toner collecting in the path from the hopper to the developing assembly could move astray because of the vibration occurring during inspection/repair work.

1. Removing from the Developing Assembly

1) Open the multifeeder door, and remove the mounting screw; then, remove the door stopper tape.
2) Remove the mounting screw ①, and remove the developing assembly locking assembly ②.

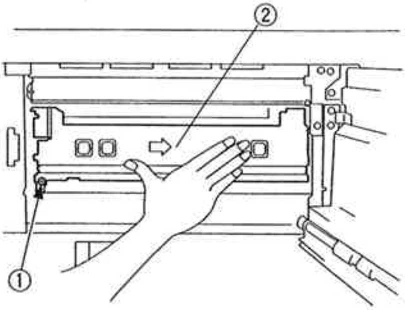


Figure 4-601

3) Disconnect the connector ③, and pull out the developing assembly ④ carefully from the copier.

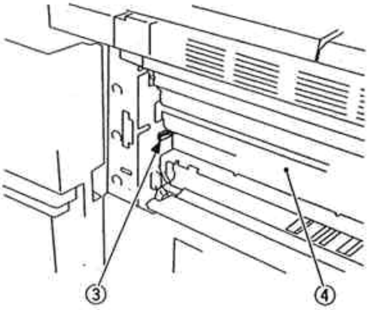


Figure 4-601a

2. Removing the Blade Unit

1) Remove the developing assembly from the copier.
2) Remove the two mounting screws ①, and remove the developing assembly cover ②.

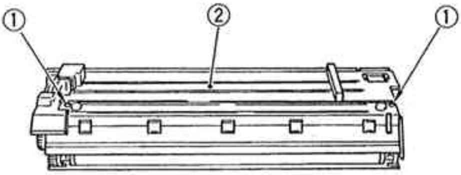


Figure 4-602

3) Place a newspaper on the floor or a desk, and pour out the toner from the developing assembly.
4) Remove the two mounting screws ③, and remove the blade unit ④ together with the mounting plate.

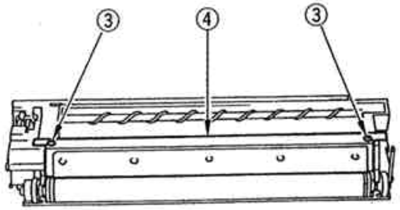


Figure 4-603

Caution:
The blade must be installed with high precision. Do not remove the blade on its own in the field.
Be sure to remove it together with its mount.

3. Installing the Blade

Install the blade by reversing the steps used to remove it with the following in mind:

1) Butt the blade mount against the developing assembly, and tighten the two mounting screws.
   To protect the developing cylinder, put copy paper on the cylinder before installing the blade.

4. Removing the Developing Cylinder and the Magnetic Seal

1) Remove the developing assembly from the copier.
2) Remove the blade unit.
3) Remove the two mounting screws ①, and remove the gear unit ② together with the gear.

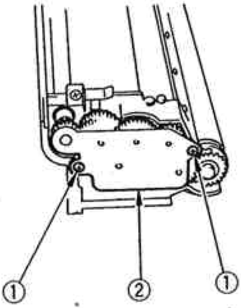


Figure 4-604

Caution:
When removing the gear unit, be careful of the gear attached to the screw, as it will become free.

4) Remove the grip ring ③ attached to the cylinder shaft at the rear, and remove the gear ④, parallel pin ⑤, and butting roll ⑥.

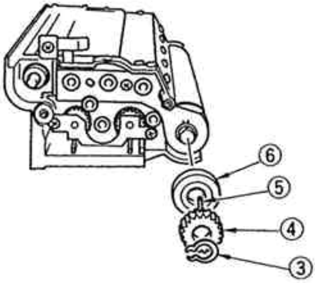


Figure 4-605

5) Remove the two mounting screws ⑦, and remove the electrode plate.

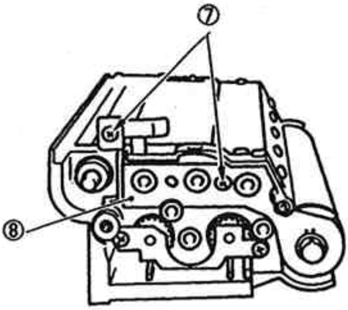


Figure 4-606

6) Remove the mounting screw ⑨, and remove the magnetic positioning plate ⑩.

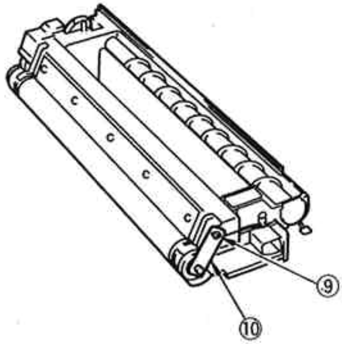


Figure 4-607

7) Remove the grip ring ⑪ from the cylinder shaft at the front, and remove the butting roll ⑫.

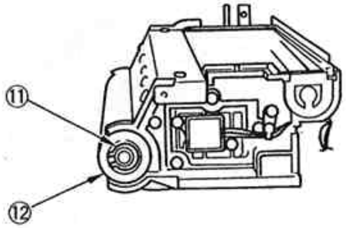


Figure 4-608

8) Remove the two mounting screws ⑬, and remove the blade ⑭ together with the mount.

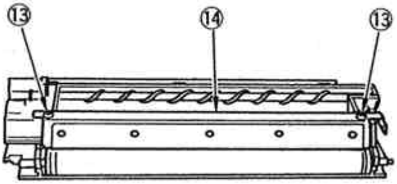


Figure 4-609

9) Remove the bearing ⑮ at the front and the rear, and remove the developing cylinder ⑯.

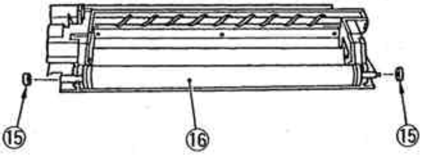


Figure 4-610

Caution:
Do not leave fingerprints or oil on the surface of the developing cylinder. If necessary, dry wipe it with lint-free paper.
If the areas of copies corresponding to those dry wiped this way tend to be light, wipe the areas with lint-free paper moistened with water. (Do not use solvent.)

B. Hopper Assembly

1. Removing the Hopper Assembly

1) Remove the developing assembly from the copier. (See p. 4-80.)
2) Slide out the hopper assembly to the front. (See p. 4-3.)
3) Remove the mounting screw ①, and remove the hopper assembly ②.

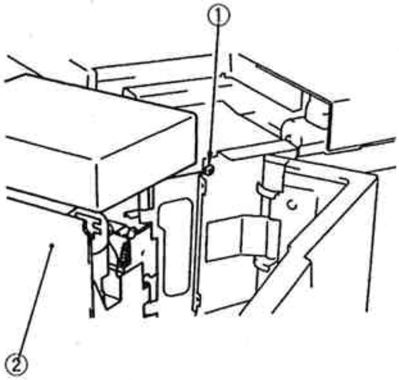


Figure 4-611

VII. DRUM CLEANING SYSTEM

A. Drum Cleaner

1. Construction

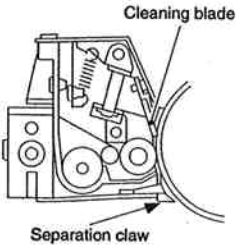


Figure 4-701

2. Removing the Cleaning Blade

1) Slide out the process unit from the copier. (See p. 4-3.)
2) Disconnect the connector ① of the drum heater AC line.
3) Remove the four mounting screws ②, and remove the cleaning blade assembly ③.

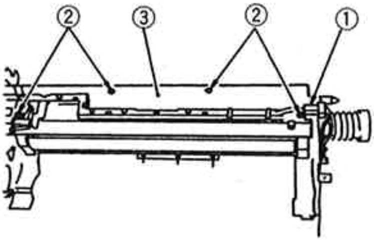


Figure 4-702

4) Remove the E-ring ④, and remove the pressure spring ⑤.

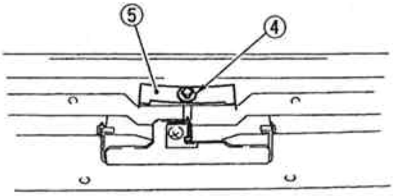


Figure 4-703

5) Loosen the five mounting screws ⑥, and remove the cleaning blade from the blade support plate.

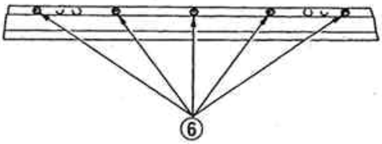


Figure 4-704

3. Installing the Cleaning Blade

Install the cleaning blade by reversing the steps used to remove it.

1) Push in the cleaning blade ① until it butts against the rear.

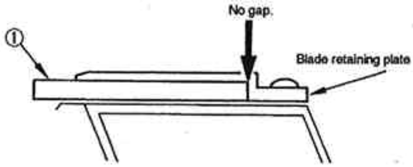


Figure 4-705

2) Lightly tighten the five mounting screws ②; then, temporarily fix them in place where resistance is felt.
3) Fully tighten the screws temporarily tightened in step 2) by turning them 20° to 30° in the order indicated.

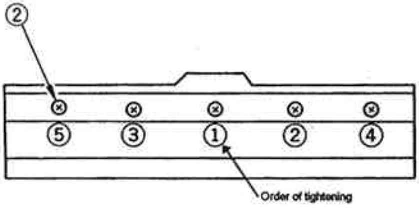


Figure 4-705a

Caution:
After installing the cleaning blade, check to make sure that its edge is not appreciably wavy. In addition, be sure to clean the blade before installation, as toner or dirt can cause them to become wavy.

4. Installing the Side Seal

1) Install the side seal ① on the inner side of the cleaner housing where indicated (both ends) while taking care so that it is not displaced outside the edge.

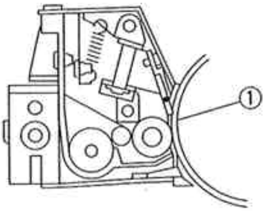


Figure 4-706

5. Cleaning the Cleaning Side Scraper

Perform the following when replacing the side scraper and, thereafter, every 500,000 copies.

1) Remove the cleaning blade.
2) Remove any paper lint collecting at the tip of the side scraper (between the magnet roller and the toner guide roller) with tweezers.
3) Remove the toner coated on the magnet roll surface. (Use a sheet of copy paper bent in the form of the letter U.)

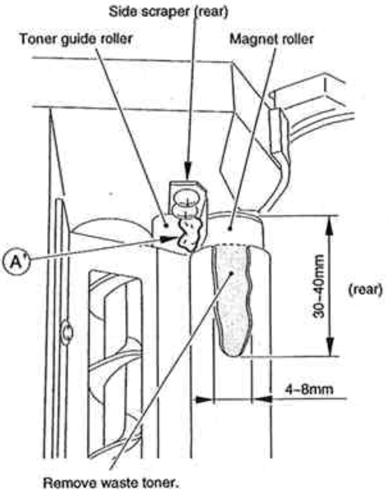

Side scraper (rear)
Toner guide roller
Magnet roller
A'
30~40mm
(rear)
4~8mm
Remove waste toner.

Figure 4-706a

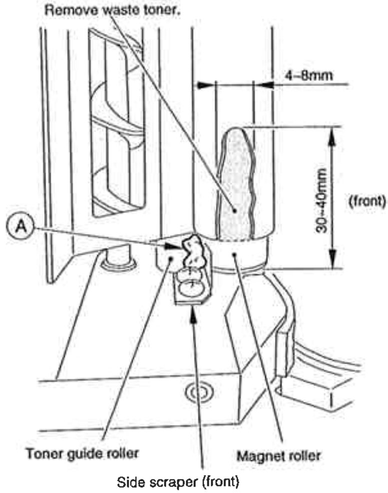

Remove waste toner.
4~8mm
30~40mm
(front)
A
Toner guide roller
Magnet roller
Side scraper (front)

Figure 4-706b

4) Turn the magnet roller clockwise (while viewing it from the front).
5) If a coating has developed once again in the area from which waste toner was removed in step 3), repeat steps 3) through 5).

B. Separation Claw/Separation Claw Drive Assembly

1. Removing the Separation Claw/Separation Drive Assembly from the Drum Unit

1) Remove the process unit from the copier. (See p. 4-3.)
2) Remove the two mounting screws ①, and remove the separation drive assembly ②.

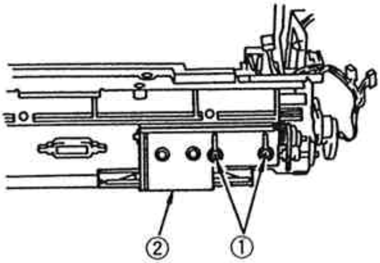


Figure 4-707

3) Turn over the process unit, and remove the four E-rings; then, remove the separation claw assembly.

2. Installing the Separation Claw/ Separation Claw Drive Assembly

Install the separation claw/separation claw drive assembly by reversing the steps used to remove it while keeping the following in mind:

1) Check to make sure that the torsion spring and the arm are as shown in Figure 4-707a.

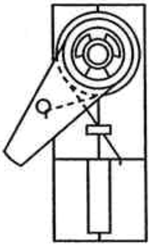


Figure 4-707a

2) Check to make sure that the pin at the tip of the rack is in the cut-off of the separation claw assembly as shown in Figure 4-707; then, install the assembly using two mounting screws.

Caution:

1. Take care not to bend the separation claw.
2. Take care not to damage the photosensitive drum.

C. Waste Toner Feeding Assembly

1) Slide out the process unit and the fixing/feeding unit from the copier. (See p. 4-3.)
2) Remove the rear cover.
3) Remove the cleaner fan and the feeding fan. (See Figure 4-11.)
4) Remove the high-voltage transformer PCB.
5) Remove the waste toner drive assembly together with the waste toner feeding assembly.
6) Remove the mounting screw ①, and remove the waste toner feeding screw locking sensor ②.

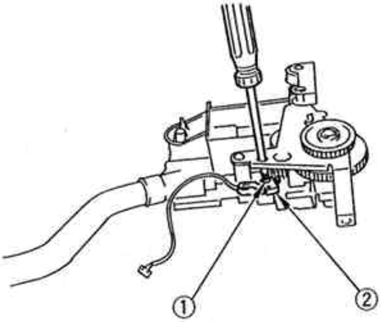


Figure 4-708

7) Remove the two mounting screws ④, and remove the waste toner feeding assembly ⑤ from the waste toner drive assembly.

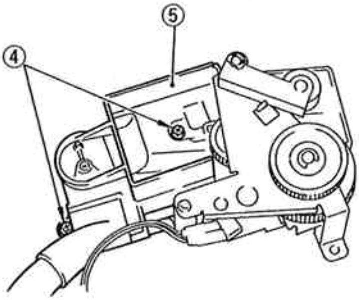
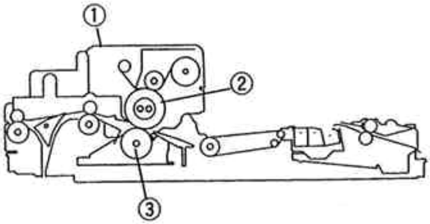


Figure 4-709

VIII. FIXING SYSTEM

A. Fixing Assembly

1. Construction



① Upper fixing unit
③ Lower roller
② Upper roller

Figure 4-801

2. Locking Mechanism

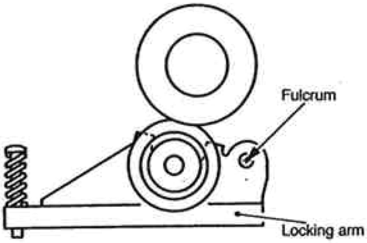

Fulcrum
Locking arm

Figure 4-802

3. Removing the Fixing Cleaning Belt

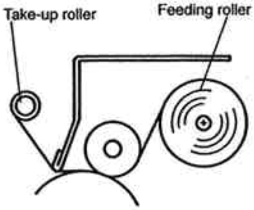

Take-up roller
Feeding roller

Figure 4-803

1) Slide out the fixing/feeding unit from the copier.
2) Remove the feeding/feeding front cover.
3) Remove the mounting screw ①, and remove the fixing upper cover ②.

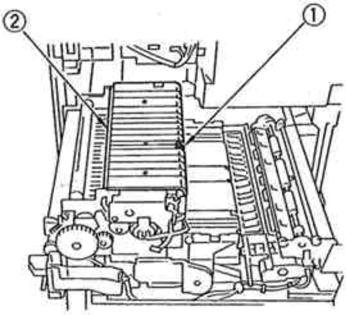


Figure 4-803a

4) Remove the two mounting screws ③ used to hold the fixing cleaning belt assembly in place, and open the top of the fixing cleaning belt assembly ④ in the upward direction.

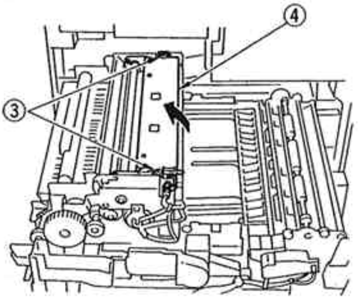


Figure 4-804

5) Remove the cleaning belt feeding roller ⑤ and the cleaning roller take-up roller ⑥ while pushing them to the rear.

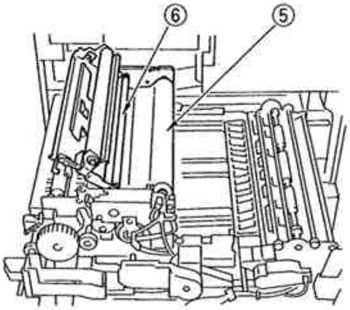


Figure 4-805

> **Caution:**
> When cleaning the silicone oil pan, be sure to remove the silicone oil collecting at the bottom of the cleaning belt feeding roller.

4. Installing the Fixing Cleaning Belt

Install the fixing cleaning belt by reversing the steps used to remove it with the following in mind:

1) Wind the cleaning belt two to three times around the cleaning belt take-up roller ①. When doing so, be sure that the arm guide plate ② is outside the take-up roller.
Check that the area where the roller comes into contact is impregnated with oil.

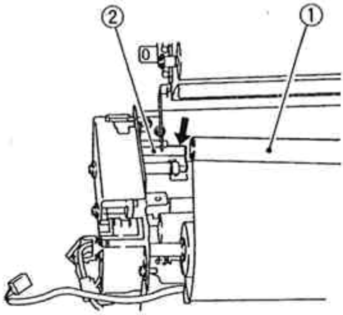


Figure 4-806

> **Caution:**
> Check to make sure that the cleaning belt is not wound at an angle and it is free of slacking or wrinkling.
> In addition, be sure that the fixing cleaning belt is installed in the direction (feeding/take-up) as shown in Figure 4-803.

2) After installing the fixing cleaning belt, move the one-way lever ③ in the direction of the arrow shown in Figure 4-807, and turn it until all the slack has been removed.

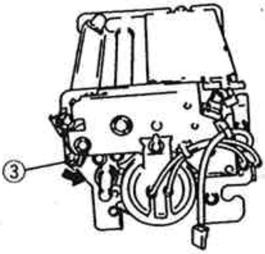


Figure 4-807

Caution:
Be sure to return the count reading of 'WEB' (*6*) to '0' whenever you have replaced the fixing cleaning belt.

5. Removing the Upper Fixing Unit

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Remove the fixing upper cover.
4) Open the fixing delivery assembly ①.

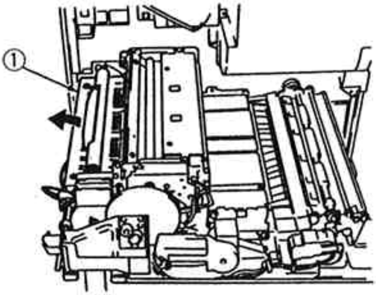


Figure 4-808

5) Remove the two mounting screws ②, and remove the flywheel mount ③.

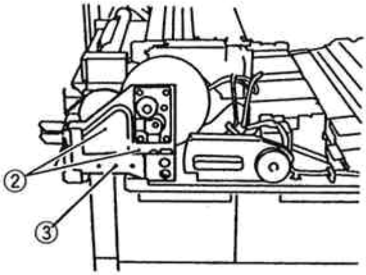


Figure 4-808a

6) Remove the E-ring ④, and remove the flywheel ⑤.

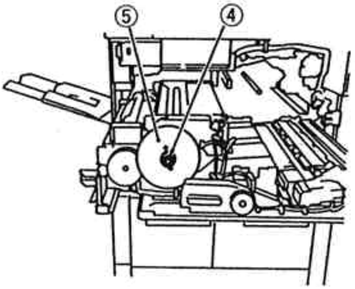


Figure 4-808b

7) Remove the fixing cleaning belt, and clean the silicone oil pan; then, remove the two mounting screws ⑥, and disconnect the two connectors ⑦.

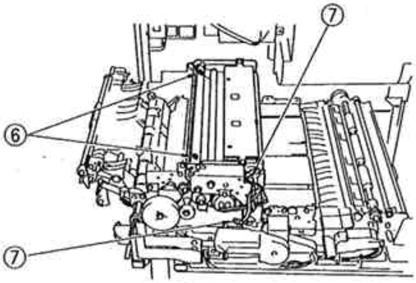


Figure 4-809

8) Open the upper feeding unit ⑧ slightly, and remove it in the upper left direction; then, place it on a desk.

Caution:
Draw out the silicone oil in advance from the silicone oil pan to avoid spilling it during work.

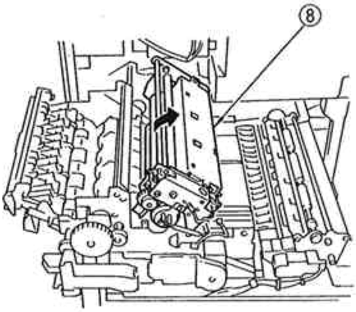


Figure 4-810

6. Removing the Fixing Heater

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Open the fixing delivery assembly.
4) Remove the flywheel.
5) Remove the upper fixing cover, and remove the fixing cleaning belt; then, clean the silicone oil pan, and remove the fixing upper unit.
6) Pull out the faston ① from the front of the hater (main heater, sub heater).
7) Remove the mounting screw ②, and remove the front electrode support plate spring ③.
8) Free the two cables ④ at the front of the heater from the wire saddle ⑤.

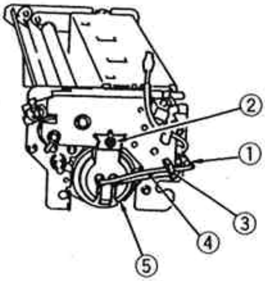


Figure 4-811

9) Remove the two fastons ⑥ from the rear.

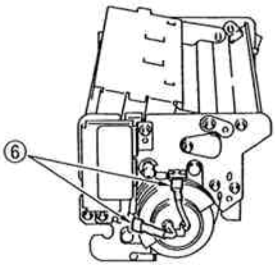


Figure 4-812

10) Pull out the main heater and the sub heater from the fixing assembly while taking care not to damage them.

Caution:
The side plate of the upper fixing unit could push up the height adjusting support plate of the fixing inlet guide if you force open the upper fixing unit when servicing the fixing/feeding unit, possibly lowering the position of the fixing inlet guide and, ultimately, causing jams.
To prevent such a problem, take extra care whenever opening the upper fixing unit.

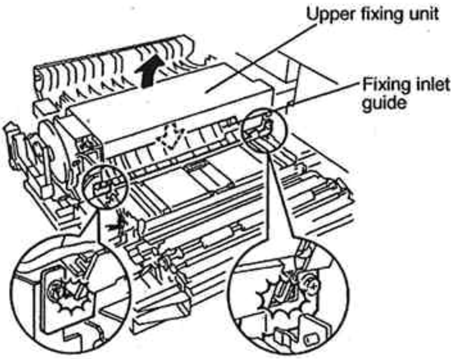

Upper fixing unit
Fixing inlet guide

Figure 4-812a

7. Installing the Fixing Heater

Install the fixing heater by reversing the steps used to remove it with the following in mind:

1) Do not touch the surface of the heater.
2) Install both heaters so that the side with the longer wire is toward the front.
3) Install the main heater (800W) on the right and the sub heater (400 W) on the left when viewing them from the front; however, install the main heater only to a 220/240V model, which does not have a sub heater.
4) Connect the fastons of the heater wires at the rear so that the one on the right is to the main heater and the one at the top is to the sub heater while viewing them from the rear.

8. Removing the Upper Fixing Roller

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Open the fixing delivery assembly.
4) Remove the flywheel.
5) After removing the upper fixing cover, remove the fixing cleaning belt; then, clean the silicone oil pan, and remove the upper fixing unit.
6) Remove the main heater and the sub heater.
7) Remove the two mounting screws used to hold the fixing cleaning assembly ① in place, and release the cleaning belt.

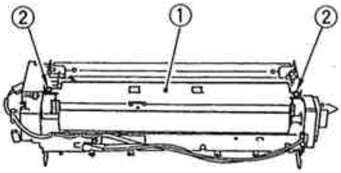


Figure 4-813

8) Remove the two mounting screws, and remove the heater holder ④ from the rear.

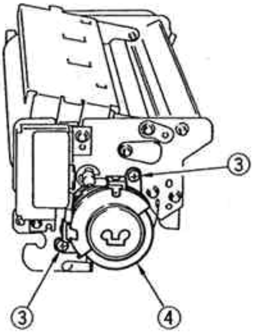


Figure 4-814

11) Remove the two stoppers ⑤ (front, rear).

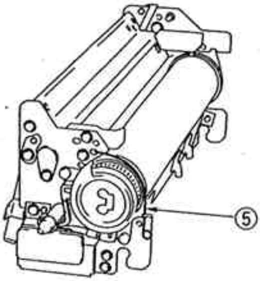


Figure 4-815 (rear)

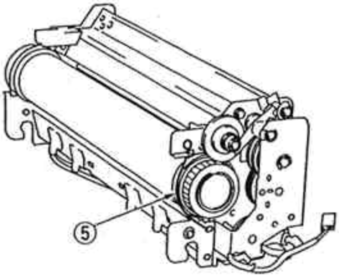


Figure 4-816 (front)

12) Remove the upper roller unit ⑥ while being careful of the thermistor and the thermal switch.

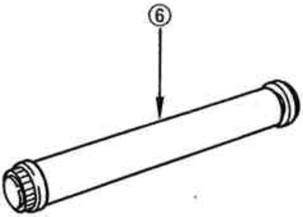


Figure 4-817

13) Remove the C-ring ⑦ at the front, and remove the gear ⑧.
14) Remove the C-ring ⑨ at the rear, and remove the gear ⑩.
15) Slide out the bearing ⑪ and the bushing ⑫ at the rear toward the front.
16) Slide out the bearing ⑬ and the bushing ⑭ at the front of the upper roller toward the front.

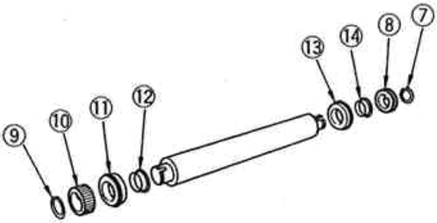


Figure 4-818

8. Installing the Upper Fixing Roller

Install the upper roller by reversing the steps used to remove it.

- Handling the Upper Roller
  To protect the surface of the roller from dirt and scratches, wrap it in copy paper or the like.

- Installing the Upper Roller

a. Install it so that the side whose section A shown in Figure 4-819 (notch) is longer is toward the rear.

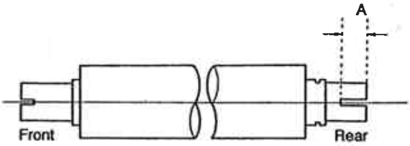


Figure 4-819

b. Install the collars of the bushings ① ② starting at the rear toward the front in the same orientation.

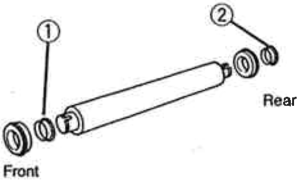


Figure 4-819a

9. Removing the Thermal Switch

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Remove the flywheel.
4) Remove the fixing upper cover and the stay cover.
5) Remove the fixing cleaning belt. Remove the mounting screw ①, and remove the oil pan ②.
6) Remove the mounting screw ③ and the faston ④, and remove the thermal switch assembly holder ⑤.
7) Remove the four mounting screws ⑥, and remove the thermal switch assembly.

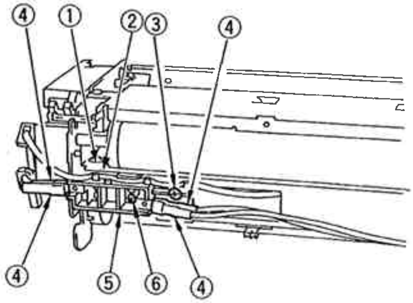


Figure 4-820

8) Remove the two mounting screws, and remove the thermal switch.

10.Removing the Thermistor

1) Remove the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Remove the fixing upper cover.
4) Remove the cleaning belt.
5) Remove the mounting screw ①, and remove the oil pan ②.

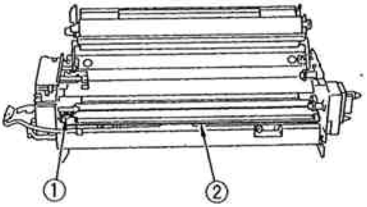


Figure 4-821

6) Remove the mounting screw ③, and shift the thermistor assembly ④ to the right to remove.

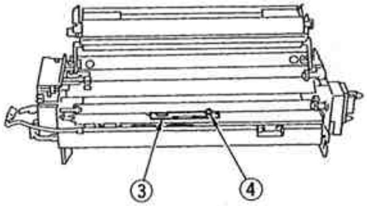


Figure 4-822

7) Remove the mounting screw ⑤ and two retaining sprigs ⑥, and remove the thermistor ⑦.

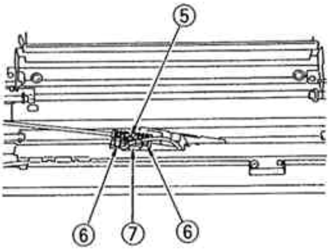


Figure 4-823

11.Removing the Lower Separation Claw Assembly

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Remove the flywheel.
4) Remove the fixing cleaning belt, and clean the silicone oil pan; then, remove the upper fixing cover.
5) Remove the fixing cleaning belt, and clean the silicone oil pan; then, remove the upper fixing unit.
6) Remove the two mounting screws ①, and remove the lower separation claw assembly ② together with the support plate.

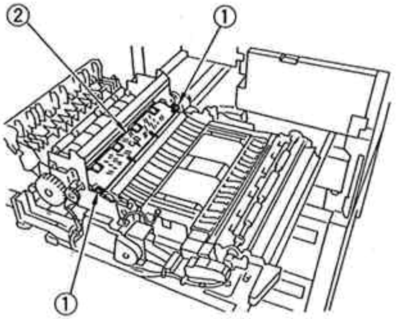


Figure 4-824

7) Remove the tension spring, and remove the lower separation claw assembly.

12.Removing the Lower Roller

1) Slide out the fixing/feeding unit from the copier.
2) Remove the fixing/feeding front cover.
3) Remove the flywheel.
4) Remove the fixing cleaning belt, ad clean the silicone oil pan; then, remove the fixing upper cover.
5) Remove the upper roller assembly of the fixing assembly.
6) Remove the lower separation claw support plate.
7) Remove the lower roller ① from the fixing assembly, and remove the two E-rings ② from the lower roller; then, remove the two bearings ③.

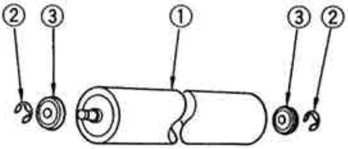


Figure 4-826

13.Removing the Upper Separation Claw

1) Slide out the fixing/feeding unit from the copier.
2) Open the fixing delivery assembly, and release the spring ①; then, remove the upper separation claw ②.

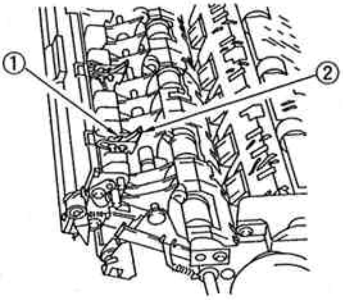


Figure 4-827

14. Adjusting the Nip (tightening the pressure adjusting nut)

The nip width is correct if it is as indicated in Table 4-801. Otherwise, turn the pressure adjusting nut.

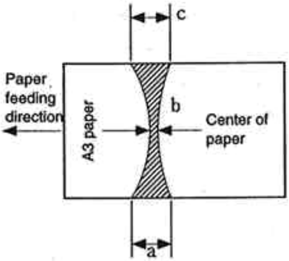


Figure 4-828

Note:
a and c are points 10 mm from either end of the copy paper.

Dimensions	Measured when the upper and lower rollers are sufficiently heated.
b	7.3±0.5mm
l a – b l	0.5mm or less

Table 4-801

a. Measuring the Nip

Wait 15 min after the end of the copier's warm-up, and make 20 copies before measuring the nip.

1) Place A3 copy paper, and select A3.
2) Open the copyboard cover.
3) Start service mode (*4*); using the >> key, select nip measurement mode 'NIP'.
4) Press the * user mode key.

The above will cause the copier to pick up paper and become ready for measurement as in Figure 4-828.

Reference:
The paper will stop once between the fixing rollers; then, it is discharged automatically in about 10 sec.

5) Measure the nip.

15. Adjusting the Fixing Clutch

Adjust the fixing clutch by turning the set screw ③ so that the gap between the 41T gear ① and the control ring ② is 0.1 to 0.3 mm whenever you have replaced any of the following component parts:

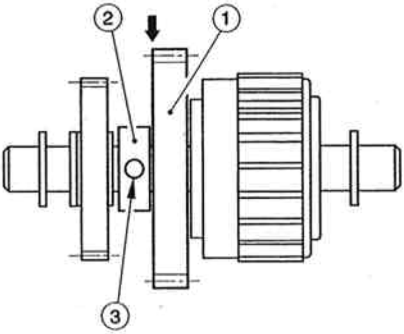


Figure 4-828a

IX. ELECTRICAL SYSTEM

A. DC Controller PCB

1. Removing the DC Controller PCB

1) Remove the rear cover.
2) Disconnect the connector from the DC controller PCB.
3) Remove the five mounting screws ① used to hold the mount In place, and remove the DC controller PCB together with its mount ②.

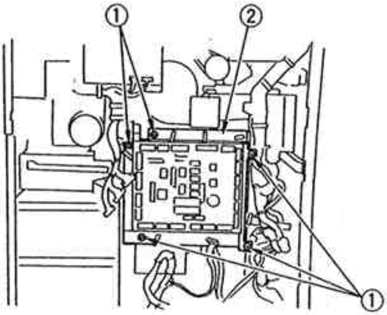


Figure 4-901

> **Caution:**
> The DC controller PCB is equipped with a battery (BAT101). Observe the following, as shorting both ends of the battery will cause overheating:

2. Points to Note When Replacing the DC Controller PCB

- When sending the DC controller PCB to the workshop or the factory, put it intact with the mount in a conducting bag. (Use a conducting bag whose one side is transparent so that the face of the PCB shows through it.)
- Make settings in service mode and user mode after replacement.
- When entering settings in service mode, enter the values recorded on the label attached to the front door.

B. DC Power Supply Assembly

1. Removing the DC Power Supply Assembly

1) Remove the upper left cover and the lower left cover.
2) Remove the eleven mounting screws ①, and remove the DC power supply protection plate ②.

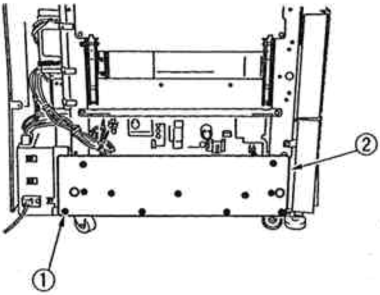


Figure 4-902

3) Disconnect the nine connectors (J303, J304, J305,J306, J308, J309, J311, and 3P relay connector, relay connector).
4) Remove the two mounting screws ③, and remove the DC power supply PCB ④ together with its mount.

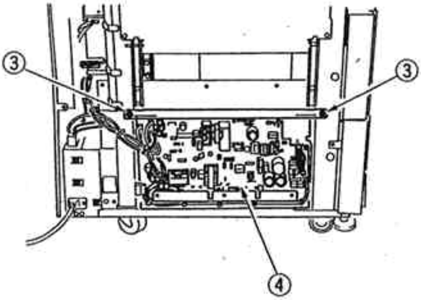


Figure 4-903

C. High-Voltage Transformer Assembly

1. Remove the High-Voltage Transformer Assembly

1) Remove the rear cover.
2) Disconnect the four connectors ① (J201, J202, J203, J301).
3) Remove the three mounting screws ②, and remove the PCB assembly ③.

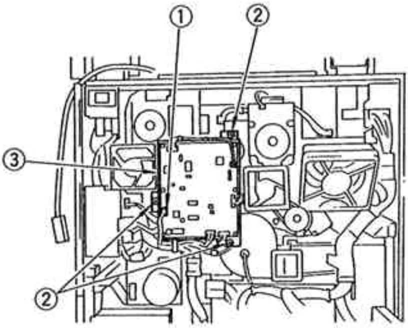


Figure 4-904

4) Remove the two fastons ④, and disconnect the connector ⑤; then, remove the two mounting screws, and remove the transformer assembly ⑦.

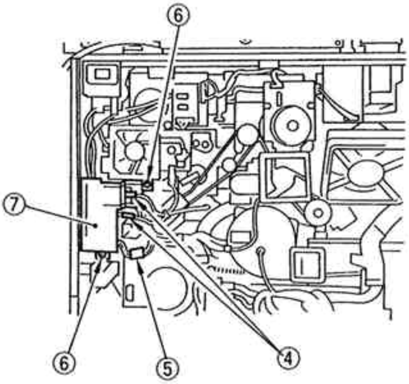


Figure 4-905

Caution:
The high-voltage transformer PCB needs factory adjustment like the transformer assembly itself; you must replace them in a set of two when whichever needs replacement.

D. Power Supply Input Assembly

1) Remove the rear cover.
2) Remove the upper left cover and the lower left cover.
3) Remove the four mounting screws ①.
4) Disconnect the four connectors, and remove the power cord mount ③.

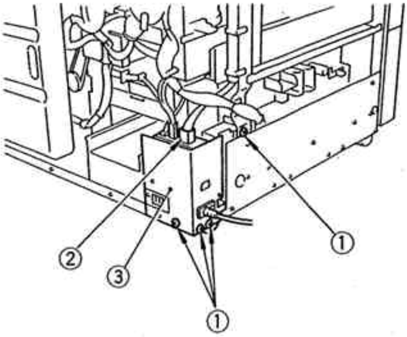


Figure 4-906

CHAPTER 5

INSTALLATION

I. SELECTING THE SITE 5-1
II. UNPACKING AND INSTALLATION 5-2
III. RELOCATING THE MACHINE 5-26
IV. INSTALLING THE CONTROL CARD V ... 5-27

I. SELECTING THE SITE

Keep the following in mind when selecting the site of installation; if possible, pay a visit to the user's before the delivery of the machine:

1. There must be a power outlet that satisfies the required power ratings and that may be used exclusively for the machine.
2. The temperature must be between 7.5° and 32.5°C and the humidity, between 5% and 85%. In particular, avoid areas near water faucets, water boilers, humidifiers, and refrigerators.
3. Avoid areas near sources of fire and areas subjected to dust or ammonium gas. Avoid direct rays of the sun; provide curtains as necessary.
4. The level of ozone generated when the machine is in operation will not affect the health of the individuals near it. However, since some may find it unpleasant, be sure that the room is well ventilated.
5. The floor must be flat so that the feet of the machine will remain in contact and the machine will be kept level.
6. The space must be large enough to allow at least 10 cm from all walls so that the machine may be operated without obstacles.

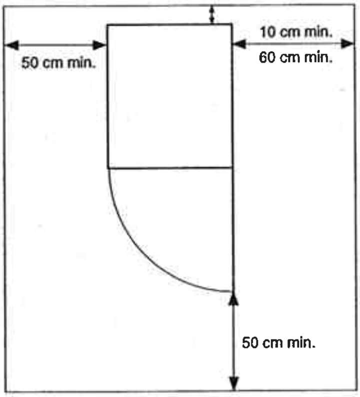


Figure 5-101

7. The site must be well ventilated. If multiple machines are installed, be sure that the exhaust from other machines will not flow into the machine. Be sure not to install the machine near air inlets used for ventilating the room.

> **Note:**
> Generally, silicone gas (vapors of silicone oil from the fixing assembly) emitted by a copier soils corona charging wires, making the life of the wires shorter. This is more conspicuous in a low humidity environment.

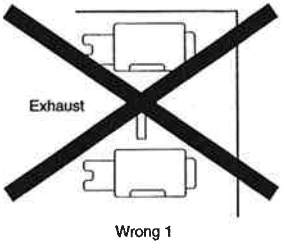


Figure 5-102

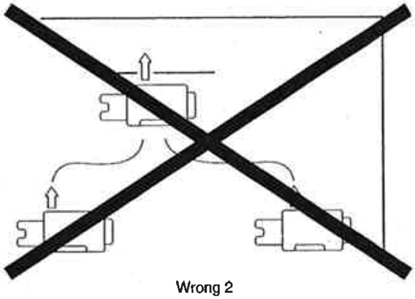


Figure 5-103

II. UNPACKING AND INSTALLATION

When a piece of metal is brought in from a cold to warm place, droplets of water tend to form on its surface. This phenomenon is known as *condensation*, and a copier suffering from condensation can generate blank copies.

If you are installing a machine brought in from a cold place, leave it alone without unpacking it for at least one hour before starting the installation work.

Note:

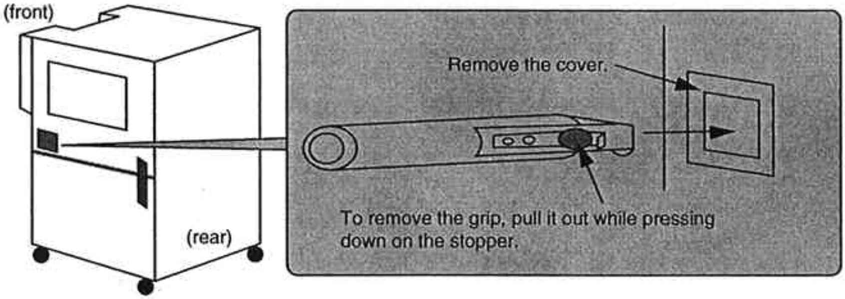
A. If you are using stairs when moving the machine into or out of the user's, keep the following in mind:
   1. Remove the fixing/feeding assembly, holding tray, and copy paper from the machine, and carry them separately from the machine. (If an RDF is installed, detach it also.)
   2. When holding the machine, do not use the grips on the pick-up or delivery assembly; support it holding the four corners of the machine bottom.

B. If the site of installation has a relatively high humidity, the image fault may occur. It is recommended that the drum heater switch be turned ON to avoid such a problem. If the site registers 60T or more under 'RHUM' (machine inside humidity) in service mode (*1*), you must turn on the drum heater switch by pressing its right side.

C. Turn up the three adjusters located on the bottom of the machine (2 at front, 1 at rear left), and make sure that they are unlocked. You must be careful to make sure that the adjusters will not fall off the bottom of the machine in transit because of vibration.

D. You must work in a group of three or more. When removing the pads, in particular, make arrangements so that one person can hold the grip at the rear and another at the front, while yet another person removes the pad and the base plate.

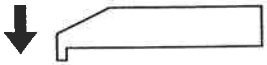
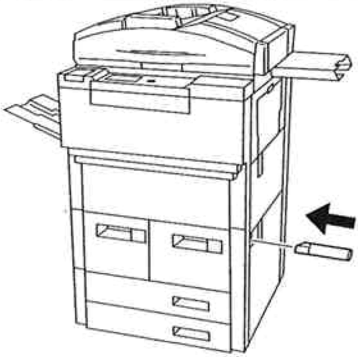
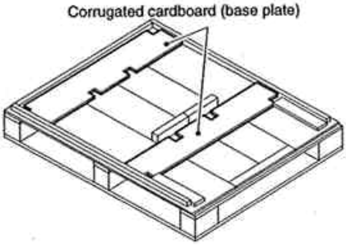
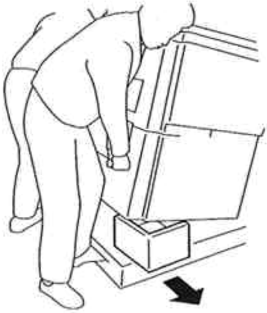
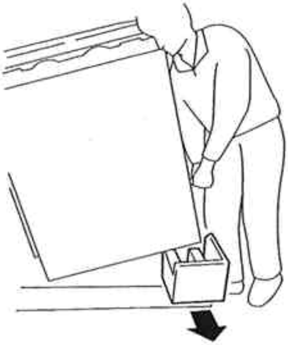
E. Go through the following when moving the machine:
   1. Find the grip inside the case attached to the machine for use in the location indicated by the arrow.
   2. Make sure that the grip is fully inside the slot before lifting the machine. (Take extra care to be sure that the grip will not slip off while lifting the machine.)
   3. The machine weighs about 180 kg. Be sure to work in a group of four when lifting it.

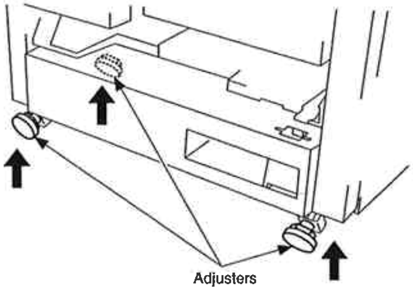
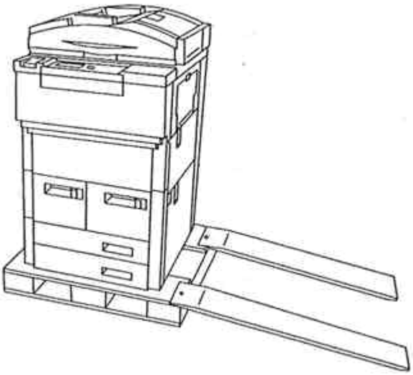


Remove the cover.

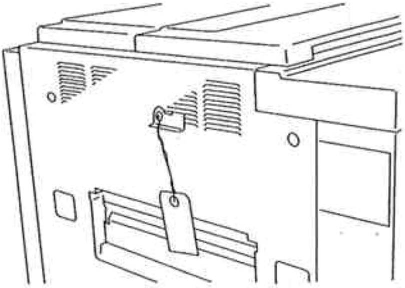
To remove the grip, pull it out while pressing down on the stopper.

A. Unpacking

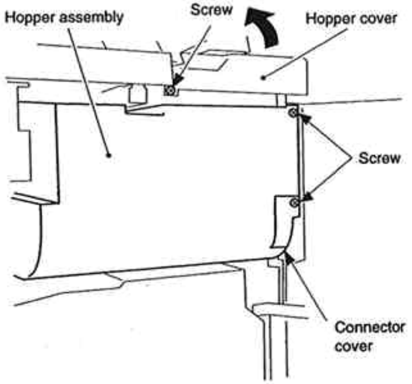
No.	Work	Checks/remarks
1	Unpack the copier, and remove the plastic sheet.	
2	Push in the grip (accessory) into the front of the pick-up side.  **Caution:** Keep the stopper of the grip facing downward; otherwise, it may slip off when the copier is lifted.	
3	Hold the grips (front, rear) of the copier's pick-up side, and lift the copier slightly to remove the two pads. Remove the corrugated cardboard (bottom plate).  	
4	Hold the grips (front, rear) of the copier's delivery side, and lift the copier slightly to remove the two pads. Remove the corrugated cardboard (bottom plate).	 The copier weighs about 180 kg.

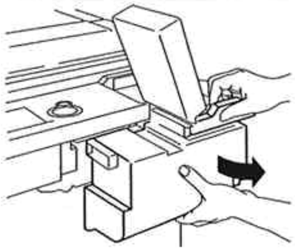
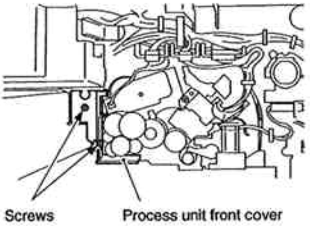
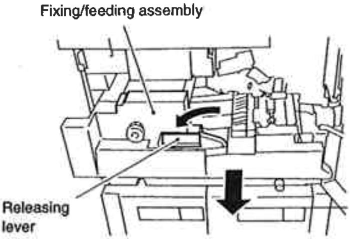
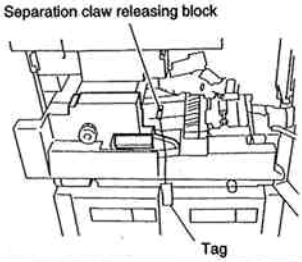
No.	Work	Checks/remarks
5	Check to make sure that the three adjusters (2 at front, 1 at rear left) on the copier's bottom are shifted up and released.	
6	Slide out the two slope plates from the skids.	
7	Turn over the slope plates, and insert fixing pins (one each) through the pin holes of the skids and the pin holes in the slope plates. • Hold the copier's grips (front, rear), and put if off the skid plates by sliding it along the slope plates.	
8	Open the cardboard box, and take out the parts and accessories.	Check to make sure that the following accessories are available: • Copy tray • Grip assembly cover (large; 3 pcs.) • Delivery gear (black) • Grip assembly cover (small; 1 pc.) • Toner • Original tray (2 mounting screws) • Grip (1 pc.) • Operator's Manual • Manual feed instruction label (1 pc.) • Drum rotating tool • Developing assembly (1 pc.) • Mode memory sheet • Drum protection sheet • Cassette size label

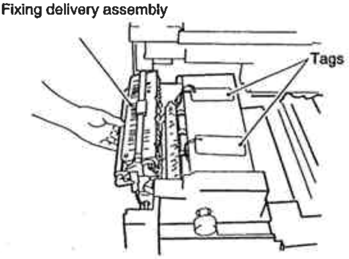
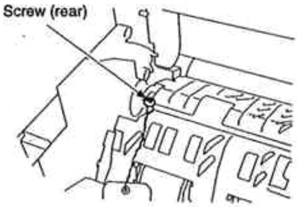
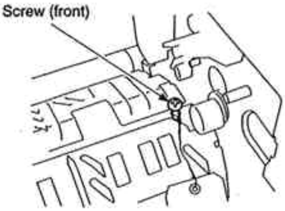
B. Installing the Scanner

No.	Work	Checks/remarks
1	Remove the copier's taping.	
2	Open the copyboard cover or the RDF.	Remove the protection tape of the size index and the protection sheet of the copyboard glass.
3	Remove the scanner fixing (packing tape). (keep the metal fixing for possible relocation of the machine.)	

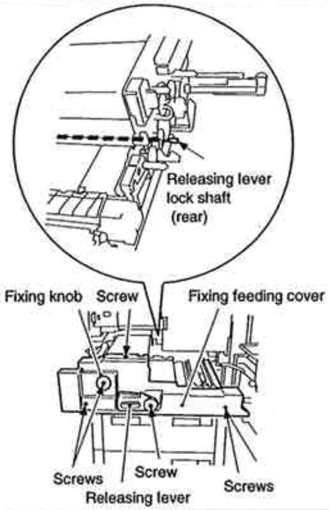
C. Installing the Fixing Assembly

No	Work	Checks/remarks
1	Open the front door.	
2	Open the multifeeder door and the upper right door, and remove the screw from the black tape (door stopper) of the front door. (This is to prevent the front door from closing the hopper after the hopper has been opened.)	
3	Remove the tape from the tag attached to the hopper assembly. (The tag and the separation claw releasing lock of the drum cleaner will be removed in step 9.)	
4	Open the hopper cover, and remove the three screws and the connector cover.	 Hopper assembly Screw Hopper cover Screw Connector cover
5	Disconnect the connector, and release the hopper assembly.	

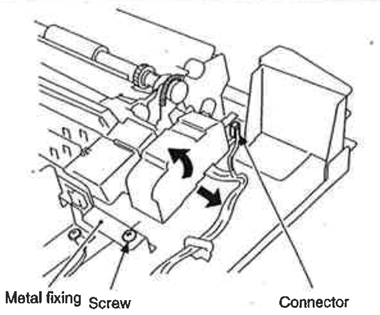
No.	Work	Checks/remarks
6	Slide out the hopper assembly to the front, and turn the front right side 90°.	
7	Remove the two screws, and remove the process unit front cover.	 Screws Process unit front cover
8	Shift the fixing/feeding assembly releasing lever in the direction of the arrow (left) to release the transfer/separation charging assembly. Slide out the fixing/feeding unit to the front.	 Fixing/feeding assembly Releasing lever
9	Remove the tag and the separation claw releasing block of the fixing/feeding assembly. **Caution:** Be sure to remove strips of tape and particles of glue from the feeding belt.	 Separation claw releasing block Tag

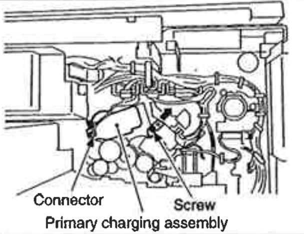
No.	Work	Checks/remarks
10	Remove the retaining tag, and open the fixing assembly/delivery assembly.	 Fixing delivery assembly Tags
11	Remove the two fixing nip releasing screws.	  Screw (front)
12	Close the fixing/delivery assembly.	

D. Installing the AP Kit and the Charging Assembly

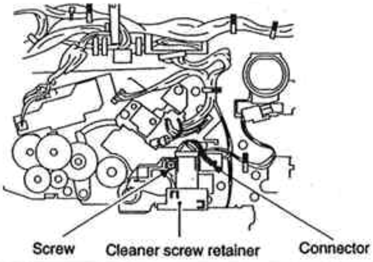
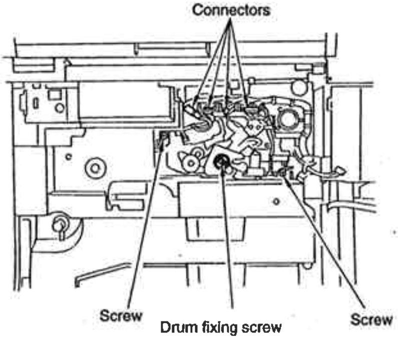
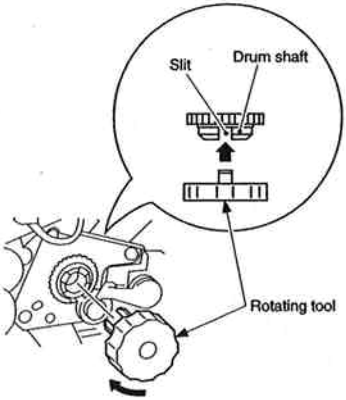
<table>
<tr><th>No.</th><th>Work</th><th>Checks/remarks</th></tr>
<tr><td>1</td><td>Remove the screw from the releasing lever of the fixing feeding assembly. While pushing the rear of the releasing lever lock shaft (on the side of the fixing feeding inside), shift the releasing lever to remove the lever. Remove the screw, and remove the fixing knob; remove the three screws, and remove the fixing feeding cover.</td><td>
Releasing lever lock shaft (rear)
Fixing knob
Screw
Fixing feeding cover
Screws
Screw
Releasing lever
Screws

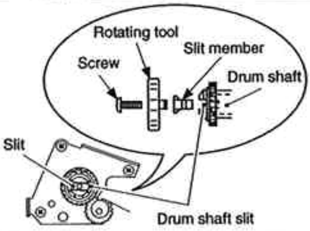
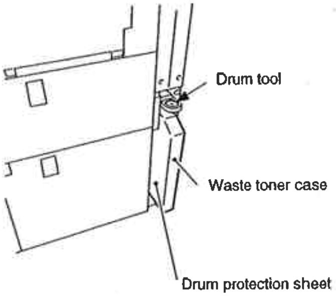
</td></tr>
<tr><td>2</td><td>Remove the metal fixing (1 screw) , and disconnect the connector; while pushing the front and the rear of the transfer/separation charging assembly, pull it to the front and then remove it toward the upper rear.
Using alcohol, clean the transfer/separation charging assembly.
Install the transfer/separation charging assembly, and connect the connector.
Install the metal fixing.

Caution:
Take care to avoid contact between the transfer/separation charging assembly and the transfer guide so that the gut wire will not be cut. Be sure that the charging assembly is fully dry.</td><td>
Metal fixing
Screw
Connector

</td></tr>
<tr><td>3</td><td>Install the fixing/feeding assembly front cover with three screws. Install the fixing knob and the releasing lever; then, put the lever in release state (lever on left).
Push the fixing/feeding assembly inside the machine.</td><td></td></tr>
<tr><td>4</td><td>Disconnect the connector, and loosen the screw; then, while moving the charging assembly fixing in the direction of the arrow (upper right), fix it in position with a screw.
Using alcohol, clean the primary charging assembly.</td><td>
Connector
Screw
Primary charging assembly

</td></tr>
</table>

No.	Work	Checks/remarks
5	Disconnect the connector, and remove the screw. Take out the pre-transfer charging assembly. Using alcohol, clean the pre-transfer charging assembly.	
6	Disconnect the four connectors, and remove the two screws. **Caution:** Remove the harness from the edge saddle.	
7	Insert the drum rotating tool into the slit in the drum shaft. Holding the rotating assembly so that the drum will not turn in counterclockwise direction, remove the drum fixing screw and the drum fixing (from the slit). **Caution:** 1. If the drum is let to rotate in counterclockwise direction, the cleaning blade will not come into contact correctly with the drum, possibly causing cleaning faults. Be sure to remove the drum fixing screw only after holding the drum in place. 2. Do not expose the photosensitive drum to light more than 30 min. 3. Never expose the photosensitive drum to direct rays of the sun. 4. When placing the photosensitive drum or the process unit outside, be sure to cover it using six more sheets of copy paper to block out the light.	
8	While paying attention to the hopper, slide out the fixing feeding assembly. Place the drum protection sheet (accessory) to protect the rubber roller of the registration roller assembly and the drum.	

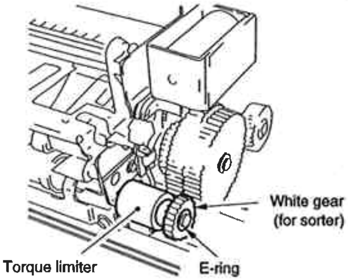
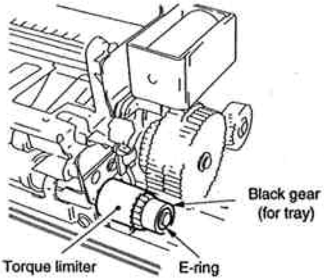
No.	Work	Checks/remarks
9	Slide out the process unit to the front, and insert the drum rotating tool into the front of the drum shaft; while rotating the drum, check that it is free of scratches.	
10	Insert the process unit into the machine, and match the slit in the drum axis and the slit in the drum using the drum rotating tool. Then, while holding the drum in place by the drum rotating tool with the drum fixing (slit member), insert a screw in the tool.	 Rotating tool Slit member Screw Drum shaft Slit Drum shaft slit
11	Remove the drum protection sheet from the fixing feeding assembly; then, insert the fixing assembly into the copier.	
12	Tighten the two mounting screws on the process unit. Connect the four connectors. Insert the primary charging assembly and the pre-transfer charging assembly, and fix them in place. Put the harness through the edge saddle.	**Caution:** 1. Check to make sure that each charging assembly is fully dry. 2. When inserting the pre-transfer charging assembly, slide it horizontally in relation to the process unit so as not to damage the surface of the roller electrode. 3. Check to make sure that the one-way arm of the pre-transfer charging assembly is on the eccentric cam.
13	Install the process unit front cover, and close the hopper; then, close the hopper, and connect the connector of the hopper. Tighten the three screws, and install the connector cover; then, close the front door.	
14	Remove the two screws, and remove the cover from the copier's rear right (bottom). The drum protection sheet will be used when servicing the process unit. Remove the dirt, if any, and keep it near the waste toner case at the rear together with the drum rotating tool. (Keep the drum rotating tool in the hole in the grip on the waste toner case top together with the waste toner case cap.) **Caution:** Do not roll the drum protection sheet.	
15	Install the cover to the copier's rear right (bottom).	

E. Installing the Copy Tray

1. Replacing the Delivery Gear

If you are not installing the Stapler Sorter-E1/-E2 or the Sorter-G1 to the NP6050, i.e., if you are using the copy tray, replace the delay gear with the gear that comes with the copy tray.

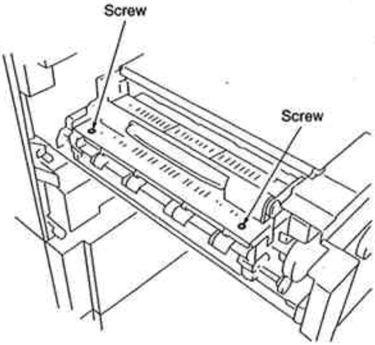
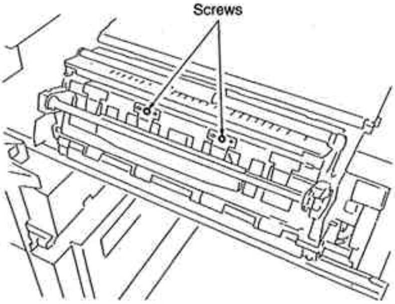
If you are installing the Stapler Sorter-E1/-E2 or the Sorter-G1 to the NP6050, check to make sure that the gear is as indicated in step 1, and do NOT perform any of the steps.

No	Work	Checks/remarks
1	Open the front door, and slide out the fixing feeding assembly; then, remove the fixing knob, releasing lever, and fixing delivery cover. Remove the E-ring, and remove the delivery gear from the copier.	
2	Replace the gear with the delivery gear (black) attached to the copy tray, and install the E-ring. **Caution:** Be sure to match the groove on the female side of the replaced gear and the male side of the torque limiter.	

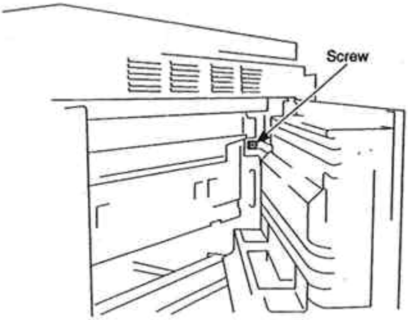
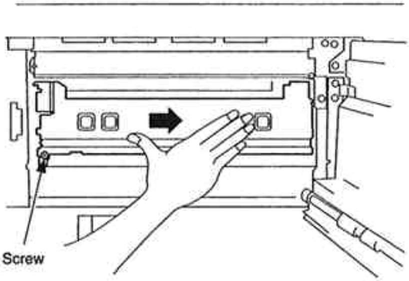
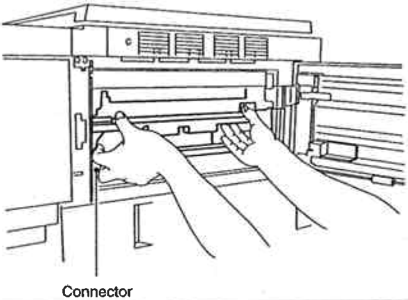
2. Replacing the Leaf Springs of the Delivery Roller

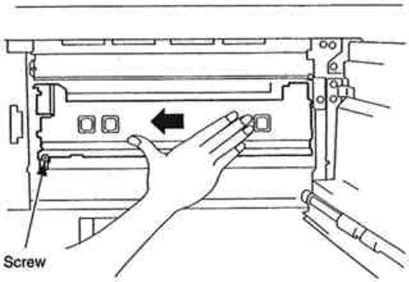
If you are removing the Stapler Sorter-E1/-E2 or the Sorter-G1 from the NP6050, i.e., if you are using the copy tray, you must replace the leaf springs (2 pcs.) of the delivery roller with the leaf springs (identified by a blue label; with weak spring pressure) attached to the copy tray.

If you are installing the Stapler Sorter-E1/-E2 or the Sorter-G1 to the NP6050, check to make sure that the two leaf springs at the center are stronger than the two leaf springs on both ends, and do NOT perform any of the following steps:

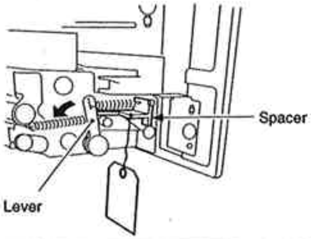
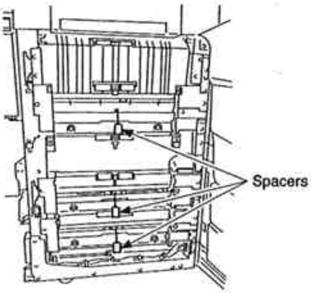
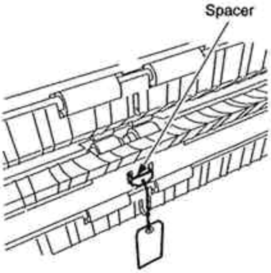
No	Work	Checks/remarks
1	Remove the two screws, and remove the fixing delivery assembly cover.	
2	Remove the screw, and remove the two leaf springs at the center (w/ rolls). Separate the leaf springs and the rolls.	
3	After installing the rolls to the leaf springs (accessory), install the leaf springs to the fixing delivery assembly.	
4	Install the fixing delivery assembly cover with two screws; then, push in the fixing feeding assembly into the copier, and close the front door.	

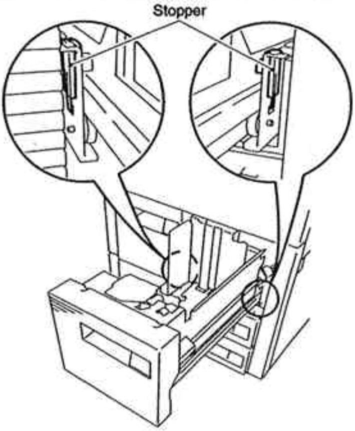
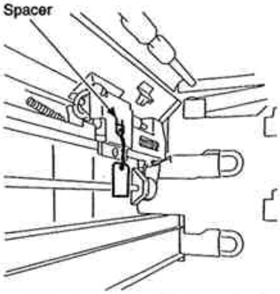
F. Checking the Developing Assembly

No.	Work	Checks/remarks
1	Open the multifeeder tray, and remove the screw from the black tape.	
2	Remove the screw, and slide the developing assembly locking unit in the direction of the arrow (rear) to remove.	
3	Take out the developing assembly from the shipping box. By turning the developing assembly cylinder gear by hand, check the cylinder for scratches.	
4	Holding the center (grip pocket) of the developing assembly, install it to the copier. Connect the connector. **Caution:** When installing the developing assembly, insert it from a high position, and take care not to bring the developing cylinder into contact with the metal plate of the developing assembly base.	

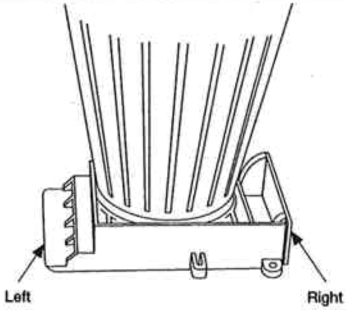
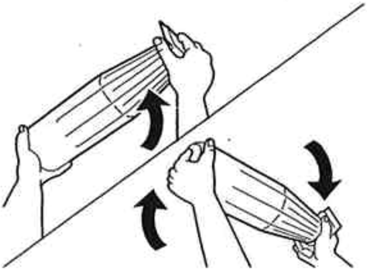
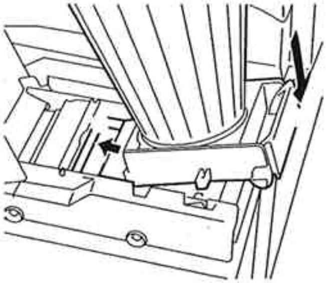
No.	Work	Checks/remarks
5	Insert the developing assembly locking unit from the right side (rear), and insert it to the left (front) when it is horizontal. Tighten the screw on the developing assembly locking unit.	
6	Install the black tape of the multifeeder with a screw.	
7	Close the multifeeder door.	

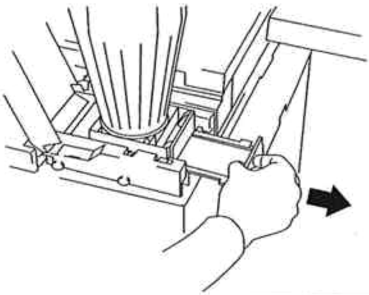
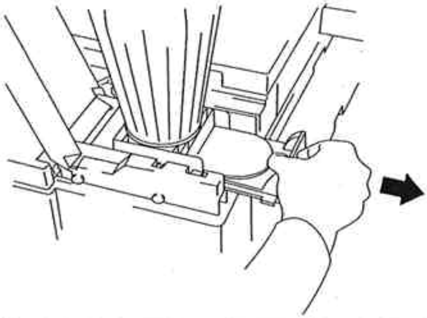
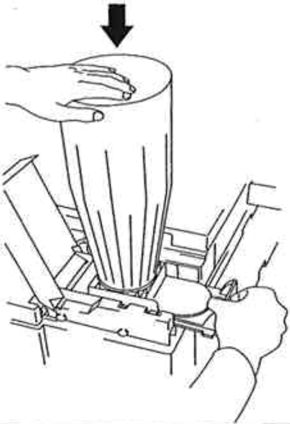
G. Installing the Pick-Up Assembly

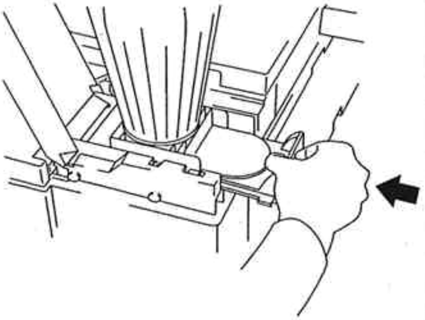
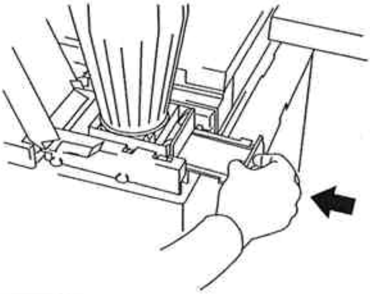
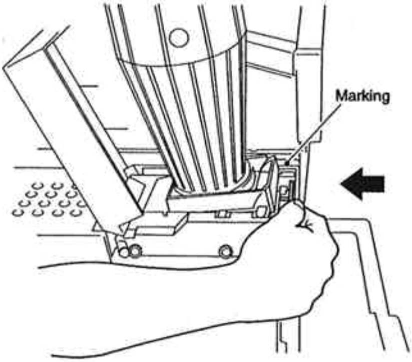
No.	Work	Checks/remarks
1	Open the multifeeder. Holding the grip on the multifeeder, open the multifeeder door. Shift the lever in the direction of the arrow, and take out the pick-up roller releasing spacer.	
2	Slide out the right deck/cassette half way, and open the upper right cover and lower right cover; then, remove the pick-up roller releasing spacers of the holders 3 and 4 of the right deck. **Reference:** It is difficult to remove the spacers without removing the cassettes, as they are locked in place.	 

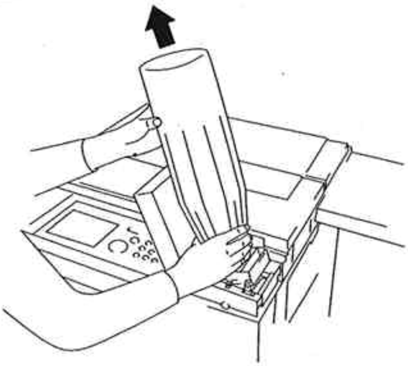
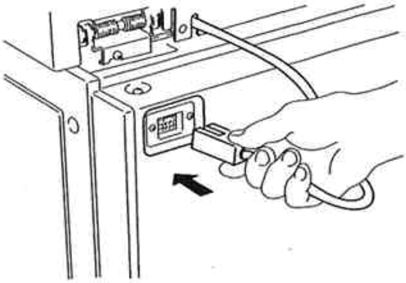
No.	Work	Checks/remarks
3	Slide out the right deck until it stops, and remove both right and left stoppers in upward direction.	
4	Lift the right deck from and away from the copier.	
5	Slide out the left deck halfway, and remove the releasing spacer from the right deck side.	
6	Push in the left deck.	
7	Insert the right deck into the copier, and install the left and right stoppers.	
8	Push in the right deck/cassette, and close the upper right cover, lower right cover, and multifeeder.	

H. Supplying Toner

No.	Work	Checks/remarks
1	Check the sides (left/right) of the mouth for the toner bottle.	
2	Shake the toner bottle well about ten times.	
3	Open the hopper cover, and fit the boss on the tip of the toner bottle in the groove of the toner supply mouth. • The toner supply mouth and the toner bottle will become locked in position.	

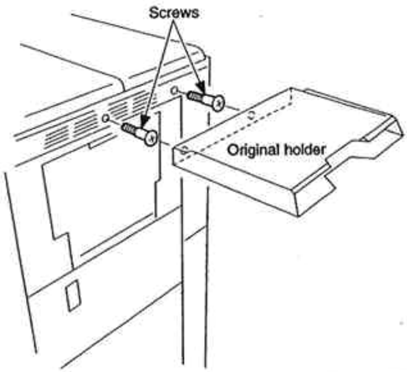
No.	Work	Checks/remarks
4	Holding the copier's shutter (black) on the right side of the toner supply mouth of the hopper, and pull it to the right until it stops.	
5	Pull the shutter on the toner bottle side to the right.	
6	When toner has dropped from the toner bottle to the hopper, lightly tap on the bottom of the toner bottle to make sure all toner has moved into the hopper.	

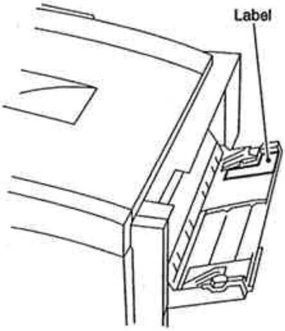
No.	Work	Checks/remarks
7	Holding the shutter of the toner bottle, push it to the left until it stops.	
8	Holding the copier's shutter, push it to the left until it stops.	
9	Push the copier's shutter up to the marking ⏮ on the hopper assembly. •This will unlock the toner bottle.	

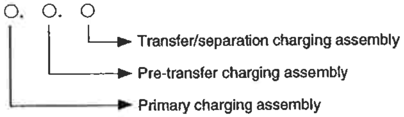
No.	Work	Checks/remarks
10	Pull the toner bottle in the upper left direction to remove.	
11	Close the hopper cover.	
12	Remove the connector face plate for the RDF.	
13	Connect the RDF's connector (male) into the copier's connector (female).	

I. Setting Images/Functions and User Mode

No.	Work	Checks/remarks
1	Connect the power plug to the power outlet, and insert the door switch actuator into the door switch assembly of the front door.	
2	Slide out the holding tray and the holding tray feeding assembly; then, check to make sure that there is no foreign matter and the parts are free of damage.	
3	Turn ON the power switch. Slide out the paper deck and the cassette to the front, and remove the packing material.	• Check that the Add Paper indicator turns ON. • Press keys on the keypad and the Clear key to make sure that the copy count is correct.
4	Set the size guide plate to suit the user's needs.	
5	Put copy paper in the cassette and the paper deck.	
6	Attach the appropriate stickers to the paper size plate of the cassette and the paper deck.	
7	Push in the cassette and the paper deck into the copier.	
8	Insert the copy tray into the copier.	

No.	Work	Checks/remarks
9	After the WAIT period is over, start service mode by inserting a paper clip or the like into the hole in the copier's upper left inside cover. Select 'TONER-S' (*4*), and press the user mode key *. ↓ Check to make sure that the message 'CHECK THE DEVELOPER' has appeared. ↓ After checking the installation of the developing assembly, press the OK key. ↓ Press the user mode key *. ↓ Execute toner supply (from hopper to developing assembly; about 8 to 10 min). ↓ ↓ Press the Reset key twice to end service mode.	• Close the front door so that light will not enter the inside of the machine. • This mode will operate for a maximum of about 10 min, supplying toner from the hopper to the developing assembly. • Do NOT turn off the power while the machine is operating.
10	Using two screws, install the original holder while toner is being supplied. (You may install it on the left side of the copier if you are not installing a sorter.)	

No.	Work	Checks/remarks
11	Install the RDF by going through the following steps while toner is being supplied. Attach the manual feed instructions label to the manual feed tray of the RDF.	
12	When toner has been supplied, place the Test Sheet on the copyboard, and make copies to check the image. Toner may fall from the drum separation claw to cause soiled images on the first ten or so copies; such a condition will disappear when more copies have been made. Check to make sure that paper is picked up from all sources of paper.	• Check to make sure that there is no abnormal sound. • Make copies at each default ratio, an check the copy image of each. • Check to make sure that as many copies as set are made normally. • If the density is different between left and right, adjust the height of the rear of the primary charging assembly to correct.
13	Make two-sided and overlay copies.	• Check to make sure that copying operation is normal. • Check to make sure that there is no abnormal sound. • Check to make sure that paper movement at the holding tray assembly is normal.
14	Set the standard mode in user mode and service mode (*5*) to suit the user's needs. Register the paper size for the paper deck in service mode (*5*). DK-SZ-R (right deck) DK-SZ-L (left deck) Press the Reset key twice to end service mode.	For service mode (*5*), see the Service Manual.

No.	Work	Checks/remarks
15	• If '0,0,0' is indicated, press the Reset key twice to end service mode. • If the notation is not '0,0,0', end service mode, and execute the following: * user mode ⇩ adjusting cleaning key ⇩ wire cleaning (selection) ⇩ start (about 40 sec of cleaning)	If the notation of 'WIRE' after executing wire cleaning is '0,0,1', remove the transfer/separation charging assembly, and execute wire cleaning once again. Be sure to install the charging assembly after execution. If you are installing options such as RDF and sorter, complete this step and install them as instructed in their respective Installation Procedures. Charging Wire Cleaner State  O. O. O Transfer/separation charging assembly Pre-transfer charging assembly Primary charging assembly
16	Remove the door switch retaining tool, and install the cover, fixing knob, and releasing lever to the fixing feeding unit; then, close the front door.	
17	Clean up the area around the machine.	
18	Move the copier to the site of installation, and fix it in position using the three adjusters.	
19	As necessary, turn ON the drum heater switch (by pushing it on the right side) to suit the environment.	
20	Fill out the service sheet.	
21	Put the grip attached to the front of the pick-up side under the grip on the pick-up rear side. Install the three covers (large) and one cover (small) of the grip assembly.	

III. RELOCATING THE MACHINE

Go through the steps in the table when relocating the machine by truck or other means of transportation.

Step	Work	Checks	Remarks
1	Make a copy in Direct.		
2	Remove all copy paper from the left/ right paper deck and all cassettes.		
3	Turn off the power switch, and disconnect the power plug.	Make sure that the lens is inside the lens hood.	
4	Fix the No. 2 mirror mount in place with the locking plate from the left cover side.	Make sure that the No. 2 mirror mount is fixed and will not move.	
5	Remove the developing assembly.	Transport the developing assembly in a separate box.	
6	Tape the transfer corona assembly, fixing/feeding unit assembly releasing lever, holding tray assembly, and the holding tray feeding assembly in place.		
7	Tape the front door, hopper cover, cassettes, left/right paper deck cover, and right door (upper, lower) in place.		
8	Place an A3 sheet of copy paper on the copyboard glass, and tape the copyboard cover or the RDF in place.		

Caution:

A. If you are using stairs when moving the machine into or out of the user's by stairs, keep the following two points in mind:
   1. Draw out the fixing/feeding unit assembly and the holding tray, and remove all copy paper; carry them separately from the machine. (If the RDF is installed, remove it.)
   2. When holding the machine, do not use the grips on the pick-up assembly/delivery assembly, but hold the machine on its four corners at the bottom.

B. You must always make sure that the three adjusters (2 at front, 1 at rear left) found on the bottom of the machine are turned up (released). At times, the adjusters can slip out of place; be careful not to lose them.

IV. INSTALLING THE CONTROL CARD V

1) Open the copyboard cover/RDF, and remove the three mounting screws ① and the three fixings (RDF catches) ②.

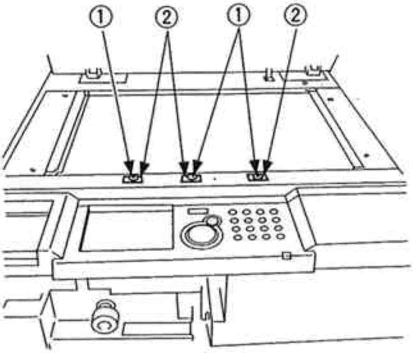


Figure 5-401

2) Remove the screw from the front side on the copier's upper right cover.

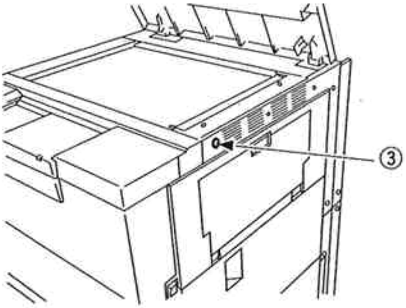


Figure 5-402

3) Remove the screw ④ from the control panel.

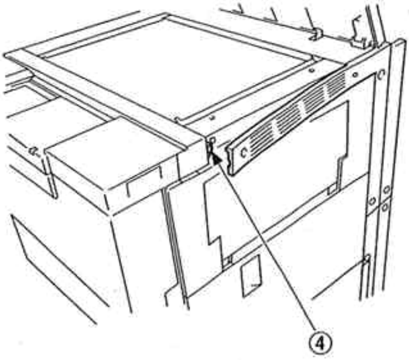


Figure 5-403

4) Open the front door, and open the hopper cover. Remove the three screws ⑤ and the connector cover ⑥, and disconnect the connector; then, slide the hopper assembly ⑦ to the front, and rotate it.

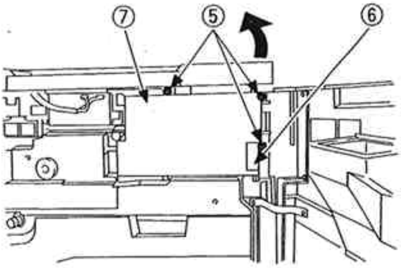


Figure 5-404

5) Shift the fixing feeding assembly releasing lever ⑧ from vertical to horizontal position, and slide out the fixing feeding assembly ⑨.

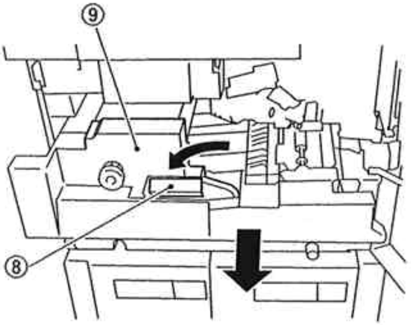


Figure 5-405

6) Remove the three screws ⑩, and remove the upper inside cover ⑪; then, push in the fixing feeding assembly.

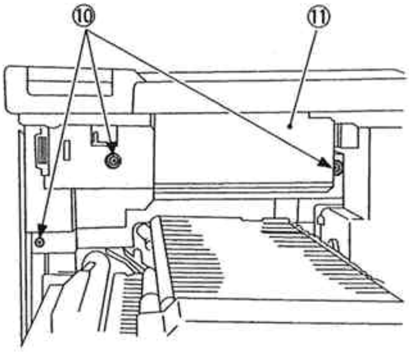


Figure 5-406

7) Remove the three screws ⑫; then, remove the control panel, and turn it over.

Caution:
Take care not to damage the surface of the control panel by the copier's chassis.

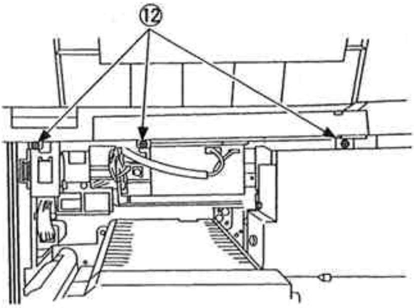


Figure 5-407

8) Remove the five tapping screws ⑬, and slide the PCB cover ⑭ 5 mm to the right to remove the control panel PCB cover.

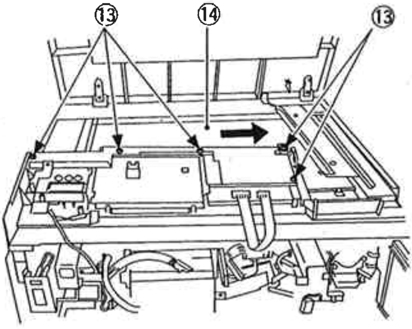


Figure 5-408

9) Remove the control card inlet face plate ⑮.

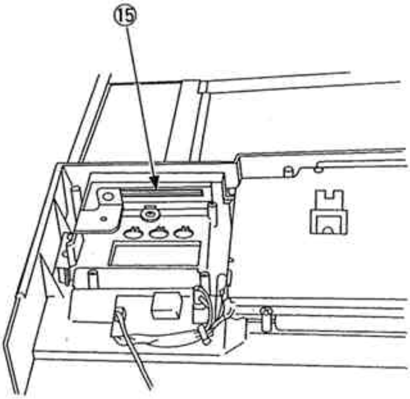


Figure 5-409

10) Remove the face plate screw ⑯.

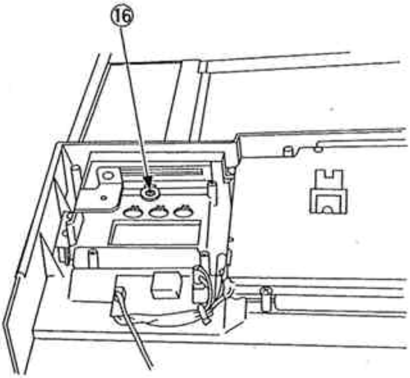


Figure 5-410

11) Place the plastic sheet ⑰ over the hole in the control panel (display opening of the Control Card V).

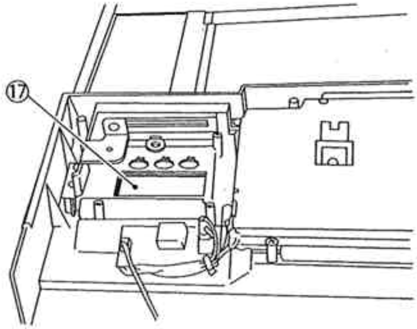


Figure 5-411

12) Remove the protection sheet from the display of the Control Card V.

13) Fix the Control Card V in place on the control panel using four screws ⑱. (Slide a card into and out of the Control Card V, and fix the Control Card V in place where the card may be moved easily.)

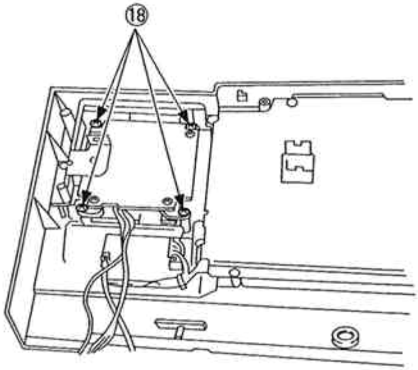


Figure 5-412

Check to make sure that the connector ⑲ of the printer is centered over the hole.

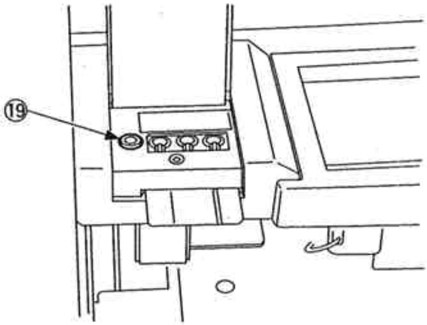


Figure 5-413

14) Install the grounding wire of the Control Card V as indicated in Figure 5-414.

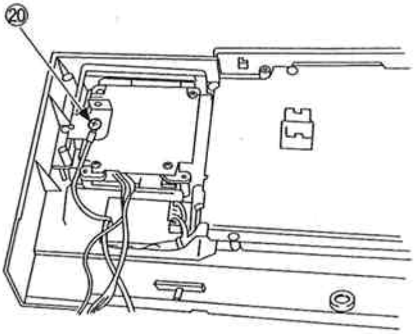


Figure 5-414

15) Disconnect the shorting connector ㉑ shown in Figure 5-415.

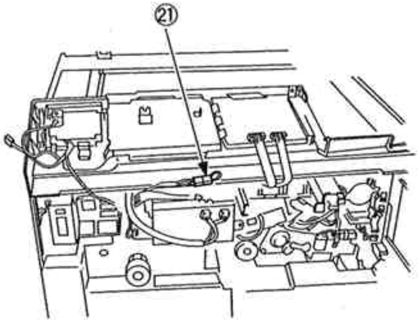


Figure 5-415

16) Connect the 4P connector of the Control Card V and the 4P connector of the copier.

Caution:
Be sure to lead the connector wire through the harness retainer so that it will not come into contact with the scanner cable and the drive pulley.

17) Remove the protection sheet from the control panel of the Control Card V.
18) Attach the control panel nameplate of the Control Card V to the copier's control panel.

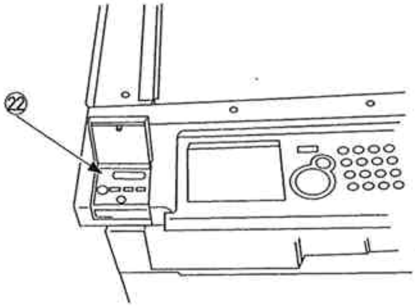


Figure 5-416

19) Install the control panel to the copier.

20) Install the hopper and the cover to the copier.

Caution:
Check to make sure that the connector is connected when installing the hopper assembly.

21) Turn ON the copier, and check the operation of the Control Card V.

CHAPTER 6

MAINTENANCE AND INSPECTION

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II. CONSUMABLES AND DURABLES ... 6-2
III. SCHEDULED SERVICING 6-4
IV. SCHEDULED SERVICING CHART.... 6-6

I. PERIODICALLY REPLACED PARTS

Some parts of the machine must be replaced on a periodical basis to ensure a specific level of machine performance; they must be replaced regardless of external deterioration or damage. Plan the replacement so that it coincides with scheduled servicing.

No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
1	Pre-transfer/transfer/separation corona wire	FY3-0030-000	AR	250,000	100V
		FY3-0040-000	AR	250,000	115/220/240V
2	Primary charging	FY1-0275-000	AR	250,000	
3	Primary charging assembly grid wire	FY1-0883-000	AR	500,000	

Note:The above values are estimates only and are subject to change based on future data.

Table 6-101

II. CONSUMABLES AND DURABLES

Some parts of the machine may require replacement because of wear or damage over the period of warranty. Replace them as necessary.

A. Copier

As of May 1996

No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
1	Multifeeder pick-up roller	FF5-1220-000	2	120,000	Rear
		FF5-1221-000	2	120,000	Front
2	Multifeeder pick-up/feeding roller	FB2-7522-000	2	120,000	
3	Multifeeder separation roller	FB2-7545-000	2	120,000	
4	Scanning lamp	FH7-3280-000	1	250,000	100V/120V
5	Scanning lamp	FH7-3282-000	1	250,000	220V/240V
6	Cleaner separation claw	FB2-6899-000	3	250,000	
7	Fixing cleaning belt	FA3-8908-000	1	250,000	
8	Delivery upper separation claw	FC1-0391-000	6	500,000	
9	Pick-up roller (paper deck, cassette)	FF5-1220-000	8	250,000	Rear
		FF5-1221-000	8	250,000	Front
10	Feeding roller (paper deck, cassette)	FB2-7695-000	8	250,000	
11	Separation roller (paper deck, cassette)	FB2-77777-000	8	250,000	
12	Duplexing pick-up crescent roller	FC2-1532-000	2	250,000	
13	Duplexing upper separation belt	FA5-5427-000	8	250,000	
14	Duplexing feeding roller	FC2-1533-000	10	250,000	
15	Primary charging wire cleaner 1	FF2-3552-000	2	500,000	
16	Primary charging wire cleaner 2	FF2-3551-000	2	500,000	
17	Transfer/separation charging wire cleaner	FF5-3090-000	3	500,000	
18	Pre-transfer charging wire cleaner	FF5-3090-000	1	500,000	
19	Pre-transfer charging assembly scraper	FA4-1867-000	1	500,000	
20	Upper fixing roller	FB2-7200-000	1	500,000	
21	Lower fixing roller	FB2-7121-000	1	500,000	

Table 6-201a

No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
22	Insulating bush (front, rear)	FB2-7239-000	2	500,000	Replace together with upper fixing roller.
23	Fixing thermistor	FH7-7349-000	1	500,000	
24	Pick-up clutch (left deck, cassette)	FH7-5372-000	3	1,000,000	
25	Pick-up clutch (right deck, cassette 1)	FH7-5534-000	1	1,000,000	
26	Cleaning blade	FA4-1827-000	1	1,000,000	Use two edges; one for 500,000.
27	Primary charging assembly	FG5-4378-000	1	1,000,000	
28	Transfer/separation charging assembly	FG5-4550-000	1	1,000,000	
29	Pre-transfer charging assembly	FG5-4377-000	1	1,000,000	
30	Fixing thermal switch	FH7-7154-000	1	1,000,000	
31	Delivery lower separation claw	FA2-9037-000	2	1,000,000	
32	Developing cylinder	FF5-3086-000	1	1,000,000	
33	Developing roll	FB2-6933-000	2	1,000,000	

Table 6-201b

III. SCHEDULED SERVICING

Caution:

1. Provide scheduled servicing every 250,000 copies.
2. Check the service record before leaving the office, and take replacement parts as necessary.
3. If you have cleaned charging wires, check to make sure that they are completely dry before installing them.

Step	Work	checks	Remarks
1	Meet the person in charge.	Check the general conditions.	
2	Record the counter reading.	Check faulty copies.	
3	Make test copies.	Check the following: a. Image density b. Background of copies (for soiling) c. Clarity of characters d. Leading edge margin e. Fixing, registration (displacement), back of copies f. Counter operation	Standards: 4.0 +1.5, -1.0 mm (Direct)
4	Clean the following: • Grid wire • Shield plate • Roller electrode		Dry wipe with lint-free paper; then, use alcohol to clean.
5	Clean the optical path assembly: • Reflecting plate for original exposure • Side reflecting plate for original exposure • Lens • No. 1, 2, 3, 4, 5, 6 mirrors • Dust-proofing glass • Pre-exposure lamp plastic sheet • Standard white plate • Heat absorbing glass		Use a blower brush. If the dirt cannot be removed, use alcohol. Moist cloth Dry wipe.
6	Check the waste toner case.	If the case is more than half full, dispose of the waste toner in a plastic bag. Or, replace the waste toner case.	

Step	Work	checks	Remarks
7	Clean the transfer guide. • Transfer guide plate (upper, lower) • Transfer/separation charging guide rail		
8	Check and clean the cleaning assembly. • Magnet roller (check) • Separation claw (clean)	If the coating on the magnet roller is uneven, • Rotate the magnet roller counterclockwise to remove paper lint and dust.	Remove the photosensitive drum from the process unit.
9	Clean the separation feeding assembly. • Feeding belt		After cleaning, be sure to install the photosensitive drum.
10	Clean the fixing delivery assembly. • Guide • Separation claw (upper, lower) • Cleaning belt (check)		Solvent Solvent
11	Provide scheduled servicing to suit the number of copies made.		
12	Clean the copyboard glass.		Use alcohol.
13	Make test copies.		
14	Make sample copies.		
15	Put sample copies in order, and clean up the area around the machine.		
16	Record the final counter reading.		
17	Fill out the service sheet, and report to the person in charge.		

IV. SCHEDULED SERVICING CHART

Caution:
Do not use solvents/oils other than those specified.

△ : Clean ● : Replace × : Lubricate ☐ : Adjust ◎ : Check

Unit	Part	Interval					Remarks
		Install-ation	every 250,000	every 500,000	every 750,000	every 1,000,000	
Optical assembly	No. 1 through No. 6 mirror		△				Use a blower brush; for the No. 5 mirror, use the mirror cleaning tool.
	Dust-proofing glass		△				
	Heat absorbing glass		△				
	Standard white plate		△				
	Reflecting shade (scanning lamp)		△				
Optical drive assembly	Scanner rail		△×				Use alcohol; then, apply lubricant.
	Scanner cable		☐◎				Inspect and adjust only when servicing after the first 250,000 copies.
Charging	Charging wire (primary, pre-transfer, transfer, separation)	△	●				
	Grid wire (primary)	△	△	●			
	Charging wire shield plate	△	△				
	Roller electrode waste toner receptacle (pre-transfer charging assembly)		△				
Photosensitiv	Photosensitive drum	◎		△			Dry wipe it at time of installation; use alcohol every 500,000 copies.
Pre-exposure	Scoop-up sheet		△				Use lint-free paper.
Blank exposure	Scoop-up sheet		△				Dry wipe with lint-free paper.
Developing	Developing cylinder	◎					
	Developing assembly roll		△				

Note 1: Take care not to touch the mirrors and the lenses.

Unit	Part	Interval					Remarks
		Install-ation	every 250,000	every 500,000	every 750,000	every 1,000,000	
Cleaner	Blade			*		●	Apply toner. *Switch edges.
	Side scraper assembly			△			Remove paper lint.
Fixing assembly	Inlet guide		△				
	Fixing cleaning belt	◎					Take it up at time of installation.
	Thermistor		△				
	Oil receptacle		△				
Delivery assembly	Separation claw (upper, lower)		△			●	
Waste toner case	Waste toner		◎				Remove as necessary.
External control	Copyboard glass		△				
	Ozone filter		△				
	Air filter (scanner cooling fan)		△				
Pick-up assembly	Pick-up roller		●				
	Feeding roller		●				
	Separation roller		●				
Feeding assembly	Transfer guide/roll		△				
	Registration roller (upper, lower)		△				
	Feeding belt		△				
	Feeding roller		△				
Holding tray	Pick-up roller (crescent)		●				
	Upper separation belt		●				
	Lower separation feeding roller		●				
Hopper	Toner supply mouth		△				
	Toner receptacle		△				

APPENDIX

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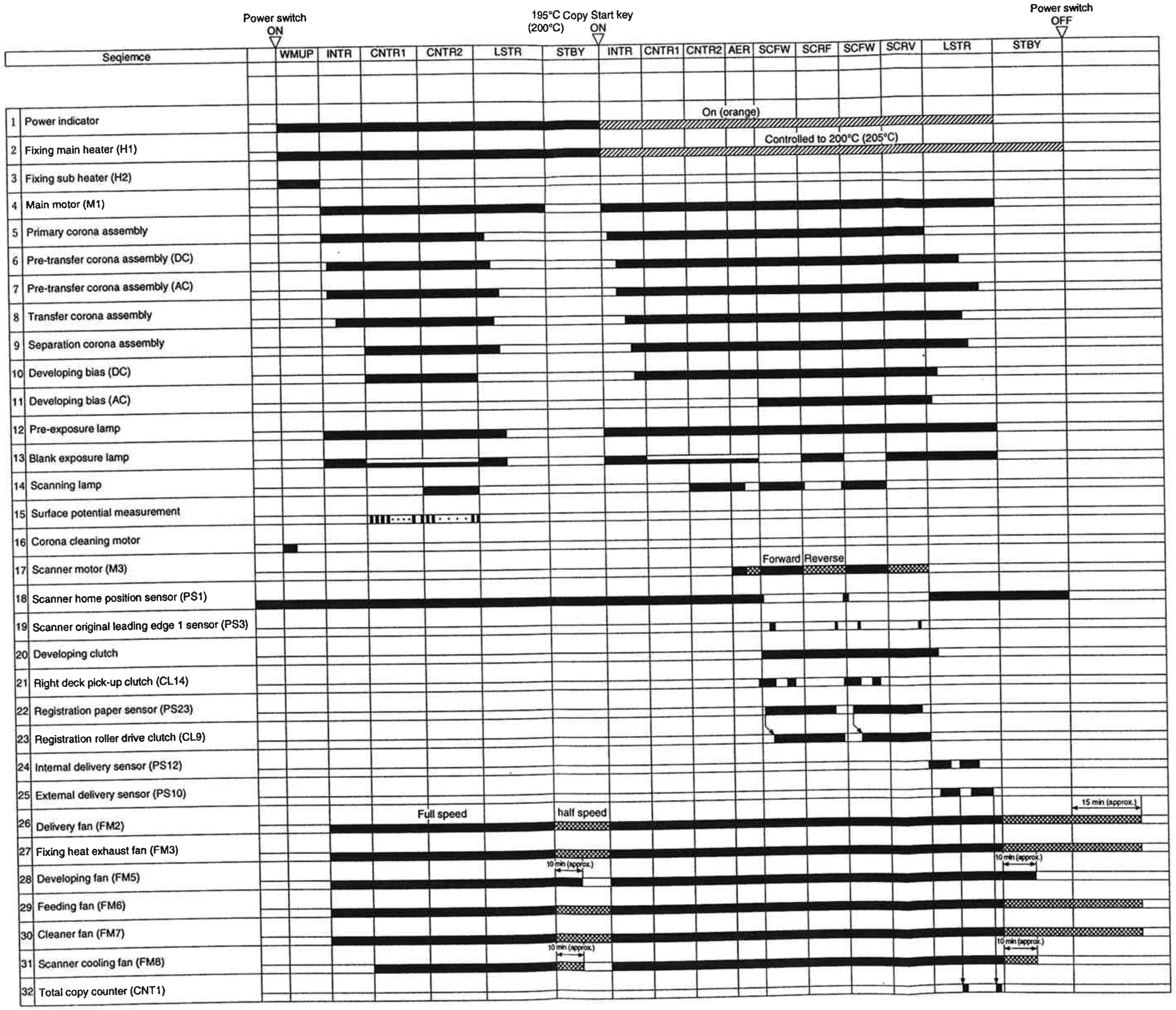
CANON NP6050 REV.1 MAY 1996 PRINTED IN JAPAN (IMPRIMÉ AU JAPON)

A. GENERAL TIMING CHART I

• A4, 2 Copies, Continuous, Right Deck



B. SIGNALS AND ABBREVIATIONS

What follows below is a list of signals and abbreviations used in the chapters of the manual and circuit diagrams.
The abbreviations within parentheses represent analog signals, which cannot be expressed in terms of '1' or '0'.

1. Signals

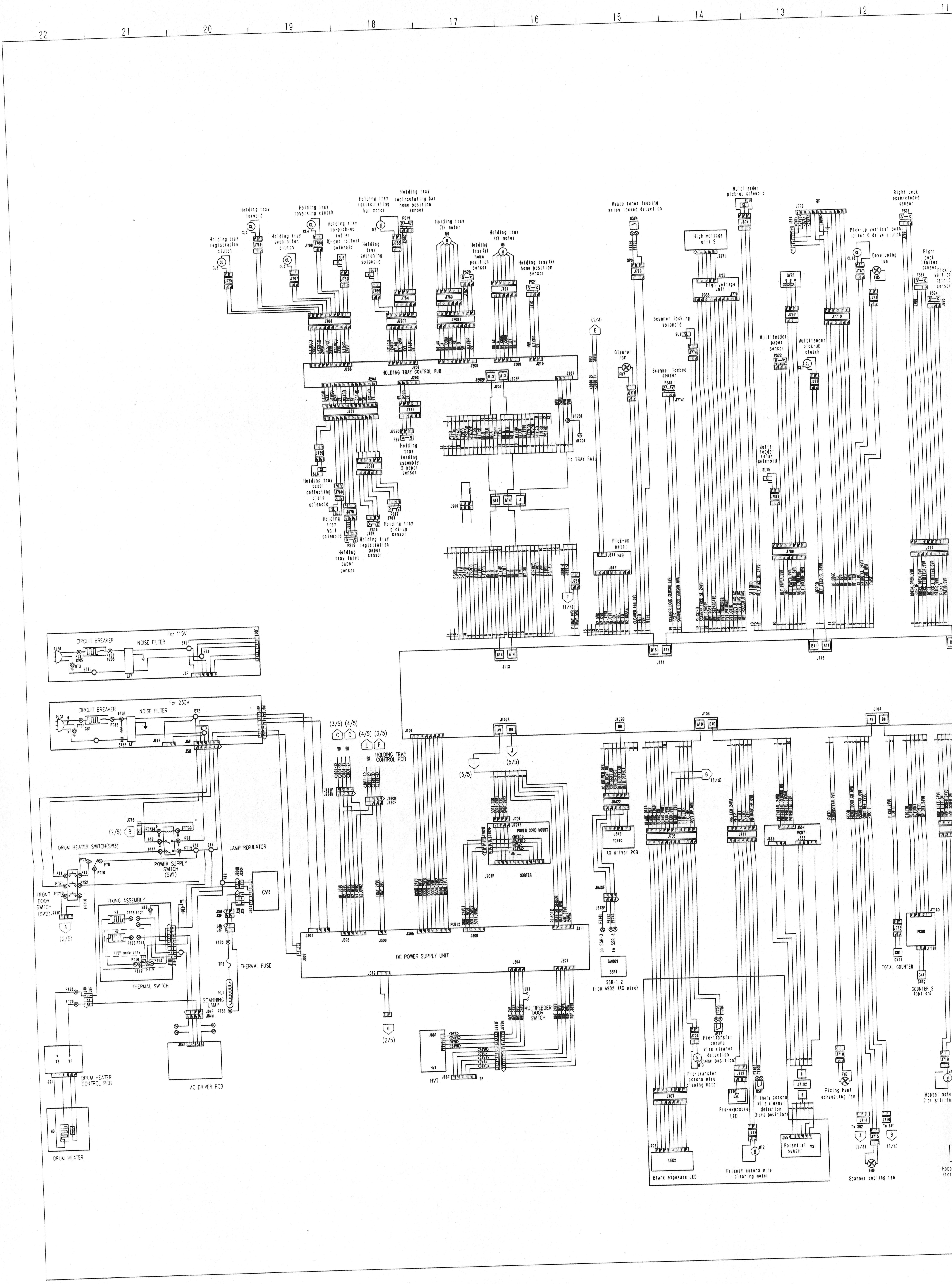
ACBTP	AC BIAS TIMING PULSE command
ACON	AC TRANSFORMER DRIVE command
LED2ON	BLANK EXPOSURE (0V) command
RDLTP	RIGHT DECK LIFTER POSITION signal
LDLTP	LEFT DECK LIFTER POSITION signal
C3LMD	CASSETTE 3 LIFTER MOTOR DRIVE command
C3LTP	CASSETTE 3 LIFTER POSITION signal
C3PD	CASSETTE 3 PAPER DETECT signal
C3PL0	CASSETTE-3 PAPER LENGTH signal
C3PL1	CASSETTE-3 PAPER LENGTH signal
C3PUCD	CASSETTE 3 PICK-UP ROLLER CLUTCH DRIVE command
C3PURR	CASSETTE 3 PICK-UP ROLLER RELEASE SOLENOID DRIVE command
C3PW	CASSETTE-3 PAPER WIDTH signal
C3SS	CASSETTE 3 SET UP signal
C4LMD	CASSETTE 4 LIFTER MOTOR DRIVE command
C4LTP	CASSETTE 4 LIFTER POSITION signal
C4PD	CASSETTE 4 PAPER DETECT signal
C4PL0	CASSETTE-4 PAPER LENGTH signal
C4PL1	CASSETTE-4 PAPER LENGTH signal
C4PUCD	CASSETTE 4 PICK-UP ROLLER CLUTCH DRIVE command
C4PURR	CASSETTE 4 PICK-UP ROLLER RELEASE SOLENOID DRIVE command
C4PW	CASSETTE-4 PAPER WIDTH signal
C4SS	CASSETTE 4 SET UP signal
CBCC	COPYBOARD COVER CLOSED signal
CBOP	CLEANING BELT OUT PRECAUTION signal
CCNNT	CONTROL CARD DETECT signal
CCNTD	CONTROL CARD DRIVE command
CL11D	VERTICAL PATH ROLLER 3 CLUTCH DRIVE command
CL13D	VERTICAL PATH ROLLER 4 CLUTCH DRIVE command
CL15D*	VERTICAL PATH ROLLER 1 CLUTCH DRIVE command
CL18D*	VERTICAL PATH ROLLER 0 CLUTCH DRIVE command
DCBC	DC BIAS CONTROL signal
DCBTP	DC BIAS TIMING PULSE command
DEVCD	DEVELOPING CLUTCH DRIVE command
DHRD	DRUM HEATER DRIVE command
DPDSD	DELIVERY PAPER DEFLECTOR SOLENOID DRIVE command
DSZ1	DOCUMENT SIZE 1 signal
DSZ2	DOCUMENT SIZE 2 signal
DSZ3A	DOCUMENT SIZE 3 signal
DSZ3B	DOCUMENT SIZE 3 signal
DTEP	DEVELOPER TONER signal
EXDPD	EXTERNAL DELIVERY PAPER DETECT signal
FCBSD	FIXING CLEANING BELT DRIVE SOLENOID DRIVE command
FDOD	FRONT DOOR OPEN DETECT signal
FFUCNT	FIXING/FEEDER UNIT CONNECT signal
FFULSD	FIXING/FEEDER UNIT LOCK SOLENOID DRIVE command
FM2D	EXHAUST FAN DRIVE command (HALF SPEED)
FM3D	EXHAUST FAN DRIVE command (HALF SPEED)
FM7D	EXHAUST FAN DRIVE command (HALF SPEED)
FM2D	EXHAUST FAN DRIVE command (FULL SPEED)
FM3D	EXHAUST FAN DRIVE command (FULL SPEED)

FM7D	EXHAUST FAN DRIVE command (FULL SPEED)
FM5D	DEVELOPING UNIT COOLING FAN DRIVE command
FM6D	FEEDER FAN DRIVE command (HALF SPEED)
FM6D	FEEDER FAN DRIVE command (FULL SPEED)
FM8D	SCANNING LAMP COOLING FAN DRIVE command (HALF SPEED)
FM8D	SCANNING LAMP COOLING FAN DRIVE command (FULL SPEED)
FXCJS	FIXING ASSEMBLY CLAW JAM signal
FXDEL	FIXING UNIT DELIVERY PAPER DETECT signal
FXDSD	FIXING UNIT DRIVE SOLENOID command
FXGDSD	FIXING ASSEMBLY GUIDE DOWN SOLENOID DRIVE command
FXGUSD	FIXING ASSEMBLY GUIDE UP SOLENOID DRIVE command
HTCNT	HOLDING TRAY CONNECT signal
HTDSD	HOLDING TRAY D-cut SOLENOID DRIVE command
HTF1CD	HOLDING TRAY FEEDER 1 CLUTCH DRIVE command
HTF2CD	HOLDING TRAY FEEDER 2 CLUTCH DRIVE command
HTFCNT	HOLDING TARY FEEDER UNIT CONNECT signal
HTFWCD	HOLDING TRAY FORWARD CLUTCH DRIVE command
HTJSD	HOLDING TRAY JOGING SOLENOID DRIVE command
HTLPD	HOLDING TRAY LAST PAPER DETECT HOME POSITION signal
HTPDD	HOLDING TRAY PAPER DEFLECTOR SOLENOID DRIVE command
HTRGCD	HOLDING TRAY REGISTRATION ROLLER CLUTCH DRIVE command
HTRVCD	HOLDING TRAY REVERSE CLUTCH DRIVE command
HTSPCD	HOLDING TRAY SEPARATION CLUTCH DRIVE command
HTWSD	HOLDING TRAY WEIGHT SOLENOID DRIVE command
HTXHP	HOLDING TRAY X HOME POSITION signal
HTYHP	HOLDING TRAY Y HOME POSITION signal
HUM1	MACHINE INSIDE HUMIDITY signal
HVPCT	PRE-TRANSFER CORONA CURRENT CONTROL command
HVSCT	SEPARATION CORONA CURRENT CONTROL command
HVTCT	TRANSFER CORONA CURRENT CONTROL command
HVTPC	PRIMARY CORONA CURRENT CONTROL command
IDPD	INSIDE DELIVERY PAPER DETECT signal
LAON	SCANNING LAMP DRIVE command
LCDLGHT	LCD BACK-LIGHT ON command
LDEL	LEFT DECK LIFTER LIMIT signal
LDEOP	LEFT DECK OPEN DETECT signal
LDLCD	LEFT DECK LIFTER CLUTCH DRIVE command
LDPD	LEFT DECK PAPER DETECT signal
LDPUCD	LEFT DECK PICK-UP ROLLER CLUTCH DRIVE command
LDPURR	LEFT DECK PICK-UP ROLLER RELEASE SOLENOID DRIVE command
LED2CK	BLANK EXPOSURE command (CLOCK)
LED2DT	BLANK EXPOSURE command (DATA)
LED2LD	BLANK EXPOSURE command (DATA LATCH)
LEXTPD	LEFT DECK EXIT PAPER DETECT signal
LINT	CVR PWM signal
LXHP	LENS X HOME POSITION signal
LYHP	LENS Y HOME POSITION signal
M1H/L	MAIN MOTOR SPEED CHANGE command
M2BLK	PAPER PICK UP MOTOR BRAKE command
M2H/L	PAPER PICK-UP MOTOR SPEED CHANGE command
M3BRK	SCANNER MOTOR BRAKE command

M3F/R	SCANNER MOTOR FORWARD command
M3FS	SCANNER MOTOR SPEED signal
M3MD0	SCANNER MOTOR REPRODUCTION RATIO SELECT (0) command
M3MD1	SCANNER MOTOR REPRODUCTION RATIO SELECT (1) command
M3MD2	SCANNER MOTOR REPRODUCTION RATIO SELECT (2) command
M3ON	SCANNER MOTOR DRIVE command
M3CL	SCANNER MOTOR PLL CONTOL command
M4A	LENS X MOTOR (A) command
X-HOLD	LENS X MOTOR (HOLD) command
M4B	LENS X MOTOR (B) signal
M5A	LENS Y MOTOR (A) signal
Y-HOLD	LENS Y MOTOR (HOLD) signal
M5B	LENS Y MOTOR (B) signal
M8A	HOLDING TRAY X MOTOR (A) command
M8B	HOLDING TRAY X MOTOR (B) command
M8HLD	HOLDING TRAY X MOTOR (HOLD) command
M9A	HOLDING TRAY Y MOTOR (A) command
M9B	HOLDING TRAY Y MOTOR (B) command
M9HLD	HOLDING TRAY Y MOTOR (HOLD) command
M1FG	MAIN MOTOR 1/4 CLOCK PULSE signal
M1ON	MAIN MOTOR DRIVE command
M10ON	HOPPER MOTOR (TONER SUPPLY) DRIVE command
M11ON	HOPPER MOTOR (TONNER STIRRING) DRIVE command
M2ON	PAPER FEED MOTOR DRIVE command
M7ON	HOLDING TRAY LAST PAPER DETECT MOTOR DRIVE command
MFDC	MULTIFEEDER DOOR OPEN DETECT signal
MFPCD	MULTIFEEDER PICK-UP CLUTCH ROLLER DRIVE command
MFPW	MULTI FEEDER PAPER WIDTH signal
MFRLSD	MULTIFEEDER PICK-UP RELAY SOLENOID DRIVE command
MFS	MULTIFEEDER PAPER DETECT signal
MHOND	MULTIFEEDER PAPER DETECT signal
MHRD	MAIN HEATER DRIVE command
OPCNTD	OPTION COUNTER DRIVE command
OPRST	OPERATION PANEL CPU RESET command
PCLHP	PRIMARY CORONA WIRE CLEANER HOME POSITION signal
PCLM	PRIMARY CORONA WIRE CLEANER MOTOR DRIVE command
PEXP	PRE-EXPOSURE LED DRIVE command
POT	PHOTOSENSITIVE DRUM SURFACE POTENTIAL signal MOTOR
POT-S-ON	PHOTOSENSITIVE DRUM SURFACE POTENTIAL SENSOR POWER ON command
PS14D	HOLDING TRAY REGISTRATION PAPER DETECT signal
PS15D	HOLDING TRAY ENTRANCE PAPER DETECT signal
PS17D	HOLDING TRAY PAPER DETECT signal
PS24D	PICK-UP VERTICAL PATH-0 PAPER DETECT signal
PS27D	PICK-UP VERTICAL PATH-3 PAPER DETECT signal
PS30D	PICK-UP VERTICAL PATH-4 PAPER DETECT signal
PS33D	PICK-UP VERTICAL PATH-1 PAPER DETECT signal
PS36D	PICK-UP VERTICAL PATH-2 PAPER DETECT signal
PS8D	HOLDING TRAY FEEDER 1 PAPER DETECT signal
PS9D	HOLDING TRAY FEEDER 2 PAPER DETECT signal
PTCLHP	PRE-TRANSFER CORONA WIRE CLEANER HOME POSITION signal
PTRCLM	PRE-TRANSFER CORONA WIRE CLEANER MOTOR DRIVE command
PWOFF	POWER SWITCH OFF command
RDEL	RIGHT DECK LIFTER LIMIT signal
RDEOP	RIGHT DECK OPEN DETECT signal
RDFEDGE	RDF DOCUMENT LEADING EDGE signal
RDLCD	RIGHT DECK LIFTER CLUCTH DRIVE command
RDPD	RIGHT DECK PAPER DETECT signal
RDPUCD	RIGHT DECK PICK-UP ROLLER CLUTCH DRIVE command
RDPURR	RIGHT DECK PICK-UP ROLLER RELEASE SOLENOID DRIVE command
RGCD	REGISTRATION ROLLER CLUTCH DRIVE command
RGPD	REGISTRATION PAPER DETECT signal
RL401D	PWU RELAY DRIVE command
RLWDOP	RIGHT LOWER DOOR OPEN DETECTsignal
ROED	ROLLER ELECTRO BIAS DRIVE command
RUPDOP	RIGHT UPPER DOOR OPEN DETECT signal
SCDP2	SCANNER DOCUMENT LEADING EDGE 2 signal
SCDP1	SCANNER DOCUMENT LEADING EDGE 1 signal
SCHP	SCANNER HOME POSITION signal
SCLK	SCANNER LOCK signal
SHOND	SUB HEATER ON DETECT signal (115V)
SHRD	SUB HEATER DRIVE command (115V)
SL10BD	MULTIFEED ROLLER SOLENOID DRIVE command
SL10FD	MULTIFEED ROLLER SOLENOID DRIVE command
SL10D	MULTI FEEDER PICK-UP SOLENOID DRIVE command
SLCKSD	SCANNER LOCK SOLENOID DRIVE command
SSWON	SERVICE SWITCH signal
SW1ON	POWER SWITCH ON DETECT signal
TCNTD	TOTAL COUNTER DRIVE command
TEP	HOPPER TONER signal
TH1	FIXING HEATER THERMISTOR signal
TH2	MACHINE INSIDE TEMPERATURE signal
TH3	DRUM HEATER THERMISTOR signal
TSCLHP	TRANSFER/SEPARATION CORONA WIRE CLEANER HOME POSITION signal
TSCLM	TRANSFER/SEPARATION CORONA WIRE CLEANER DRIVE command
WTFL	WASTE TONER FEEDING SCREW LOCK DETECT signal

2. Abbreviations

AER	AE (MEASUREMENT) ROTATION
CNTR1	CONTROL ROTATION 1
CNTR2	CONTROL ROTATION 2
INTR	INITIAL ROTATION
LSTR	LAST ROTATION
SCFW	SCANNER FORWARD
SCRV	SCANNER REVERSE
STBY	STANDBY
WAIT	WAIT
WMUP	WARM UP
WMUPR	WARM UP ROTATION


22
21
20
19
18
17
16
15
14
13
12
11
Holding tray registration clutch
Holding tray forward
Holding tray separation clutch
Holding tray reversing clutch
Holding tray re-pick-up roller (D-cut roller) solenoid
Holding tray switching solenoid
Holding tray recirculating bar motor
Holding tray recirculating bar home position sensor
Holding tray (Y) motor
Holding tray (Y) home position sensor
Holding tray (X) motor
Holding tray (X) home position sensor
HOLDING TRAY CONTROL PUB
Holding tray paper deflecting plate solenoid
Holding tray wait solenoid
Holding tray inlet paper sensor
Holding tray registration paper sensor
Holding tray pick-up sensor
Holding tray feeding assembly 2 paper sensor
to TRAY RAIL
Waste toner feeding screw locked detection
Cleaner fan
Pick-up motor
Scanner locking solenoid
Scanner locked sensor
High voltage unit 2
High voltage unit 1
Multifeeder pick-up solenoid
Multifeeder paper sensor
Multifeeder pick-up clutch
Multi-feeder relay solenoid
RF
Pick-up vertical path roller 0 drive clutch
Developing fan
Right deck open/closed sensor
Right deck limiter sensor
CIRCUIT BREAKER
NOISE FILTER
For 115V
For 230V
DRUM HEATER SWITCH(SW3)
POWER SUPPLY SWITCH (SW1)
LAMP REGULATOR
CVR
FRONT DOOR SWITCH (SW2)
FIXING ASSEMBLY
115V model only
THERMAL SWITCH
THERMAL FUSE
SCANNING LAMP
DRUM HEATER CONTROL PCB
AC DRIVER PCB
DRUM HEATER
HOLDING TRAY CONTROL PCB
DC POWER SUPPLY UNIT
POWER CORD MOUNT
SORTER
MULTIFEEDER DOOR SWITCH
HVT
AC driver PCB
SSR-1,2 from A902 (AC wire)
to SSR-3
to SSR-4
Pre-transfer corona wire cleaner detection (home position)
Pre-transfer corona wire cleaning motor
Pre-exposure LED
Primary corona wire cleaner detection (home position)
Primary corona wire cleaning motor
Potential sensor
Blank exposure LED
Fixing heat exhausting fan
Scanner cooling fan
TOTAL COUNTER
COUNTER 2 (option)
Hopper motor (for stirring)
J101
J102A
J102B
J103
J104
J113
J114
J115
(1/4)
(2/5)
(3/5)
(4/5)
(5/5)

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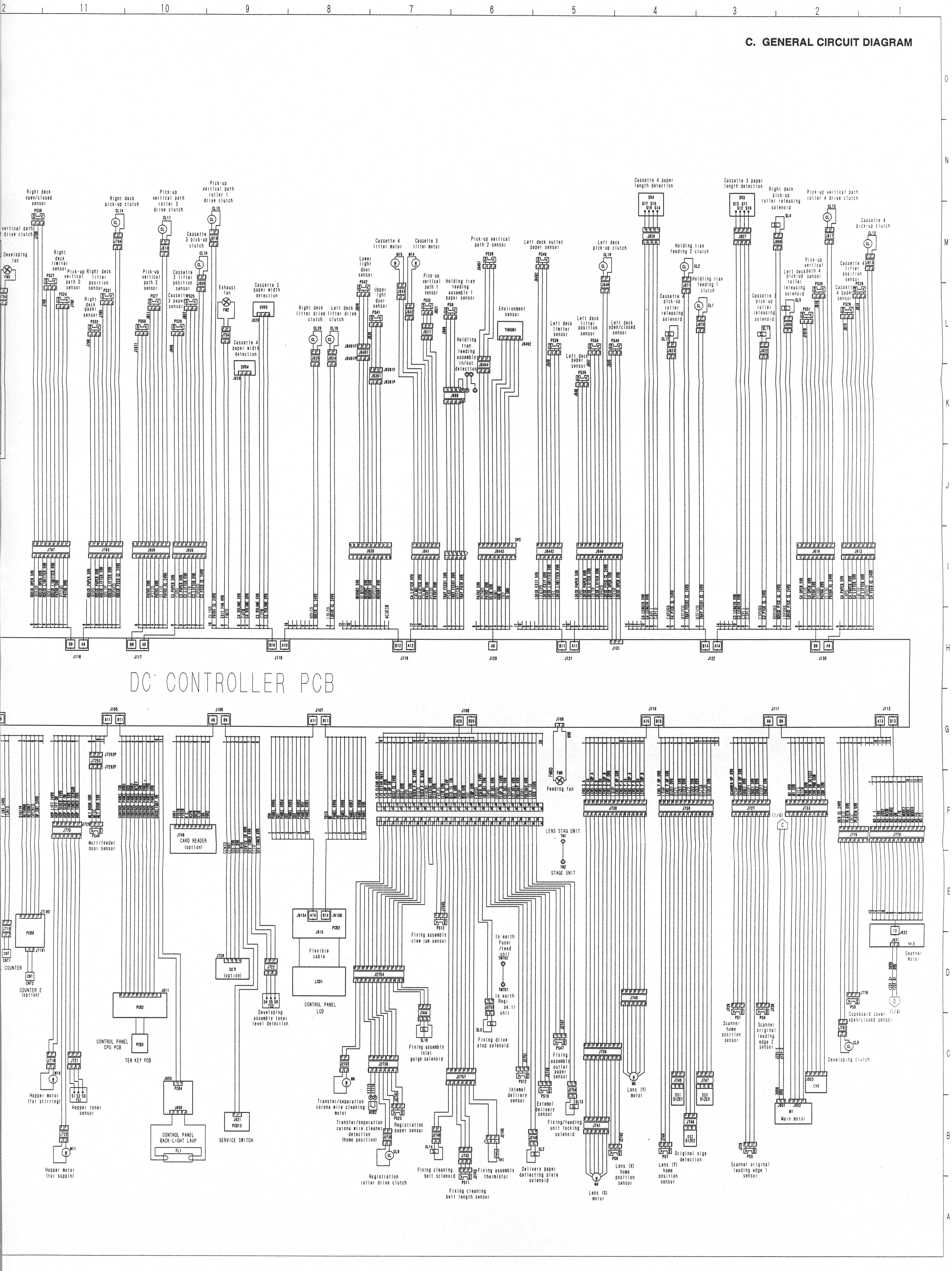
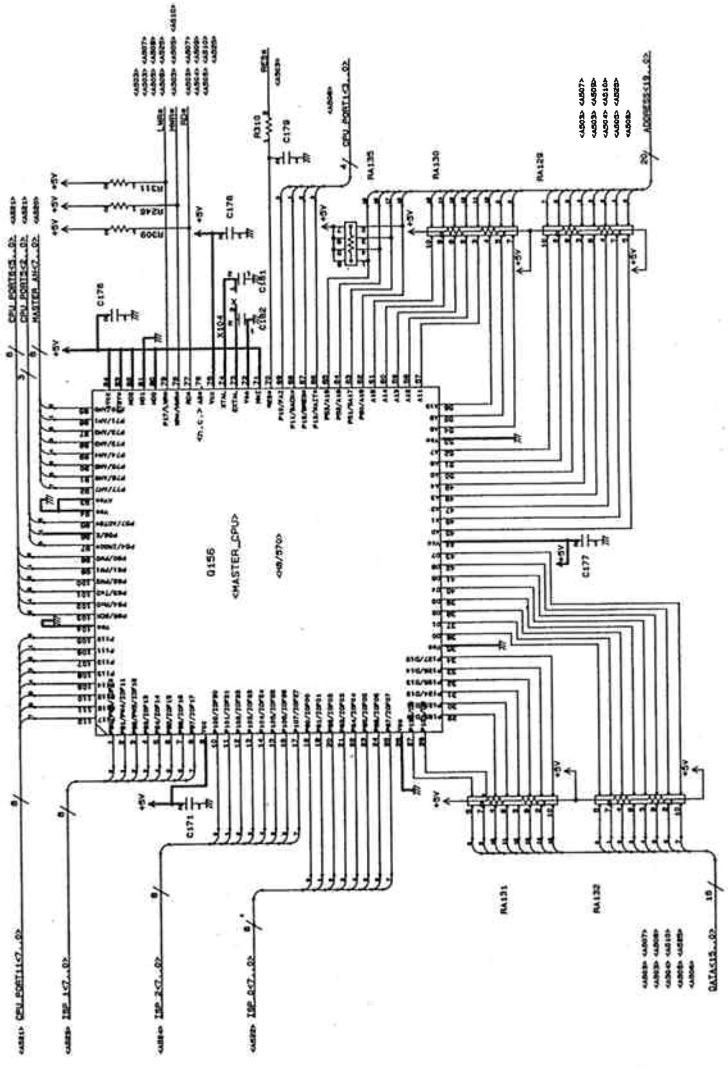
C. GENERAL CIRCUIT DIAGRAM


DC CONTROLLER PCB
Right deck open/closed sensor
Developing fan
Right deck limiter sensor
Pick-up vertical path 0 sensor
Right deck lifter position sensor
Right deck paper sensor
Right deck pick-up clutch
Pick-up vertical path roller 3 drive clutch
Pick-up vertical path 3 sensor
Cassette 3 lifter position sensor
Cassette 3 paper sensor
Cassette 3 pick-up clutch
Pick-up vertical path roller 1 drive clutch
Exhaust fan
Cassette 3 paper width detection
Cassette 4 paper width detection
Right deck lifter drive clutch
Left deck lifter drive clutch
Lower right door sensor
Upper right door sensor
Cassette 4 lifter motor
Cassette 3 lifter motor
Pick-up vertical path 1 sensor
Holding tray feeding assembly 1 paper sensor
Holding tray feeding assembly in/out detection
Pick-up vertical path 2 sensor
Environment sensor
Left deck outlet paper sensor
Left deck limiter sensor
Left deck lifter position sensor
Left deck paper sensor
Left deck pick-up clutch
Left deck open/closed sensor
Cassette 4 paper length detection
Cassette 4 pick-up roller releasing solenoid
Holding tray feeding 2 clutch
Holding tray feeding 1 clutch
Cassette 3 paper length detection
Cassette 3 pick-up roller releasing solenoid
Right deck pick-up roller releasing solenoid
Left deck pick-up roller releasing solenoid
Pick-up vertical path 4 sensor
Pick-up vertical path roller 4 drive clutch
Cassette 4 lifter position sensor
Cassette 4 paper sensor
Cassette 4 pick-up clutch
COUNTER
COUNTER 2 (option)
Hopper motor (for stirring)
Hopper toner sensor
Hopper motor (for supply)
Multifeeder door sensor
CONTROL PANEL CPU PCB
TEN KEY PCB
CONTROL PANEL BACK-LIGHT LAUP
CARD READER (option)
CC-V (option)
SERVICE SWITCH
Developing assembly toner level detection
Flexible cable
CONTROL PANEL LCD
Transfer/separation corona wire cleaning motor
Transfer/separation corona wire cleaner detection (home position)
Registration paper sensor
Registration roller drive clutch
Fixing assembly inlet guige solenoid
Fixing assembly claw jam sensor
Fixing cleaning belt solenoid
Fixing cleaning belt length sensor
Fixing assembly thermistor
to earth Fuser /feed unit
to earth Regi se.ti unit
Fixing drive stop solenoid
Internal delivery sensor
External delivery sensor
Delivery paper deflecting plate solenoid
Fixing assembly outlet paper sensor
Fixing/feeding unit locking solenoid
Feeding fan
LENS STAG UNIT
STAGE UNIT
Lens (X) motor
Lens (X) home position sensor
Lens (Y) motor
Lens (Y) home position sensor
Original sige detection
Scanner home position sensor
Scanner original leading edge 2 sensor
Scanner original leading edge 1 sensor
Main motor
CVR
Copyboard cover open/closed sensor
Developing clutch
Scanner motor
J105
J106
J107
J108
J109
J110
J111
J112
J116
J117
J118
J119
J120
J121
J122
J130
J131

D. DC CONTROLLER PCB

DC Controller [A502] (1/29)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CPU_PORT2<2..0>
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CPU_PORT1<3..0>
CPU_PORT1<7..0>
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ISP_2<7..0>
ISP_0<7..0>
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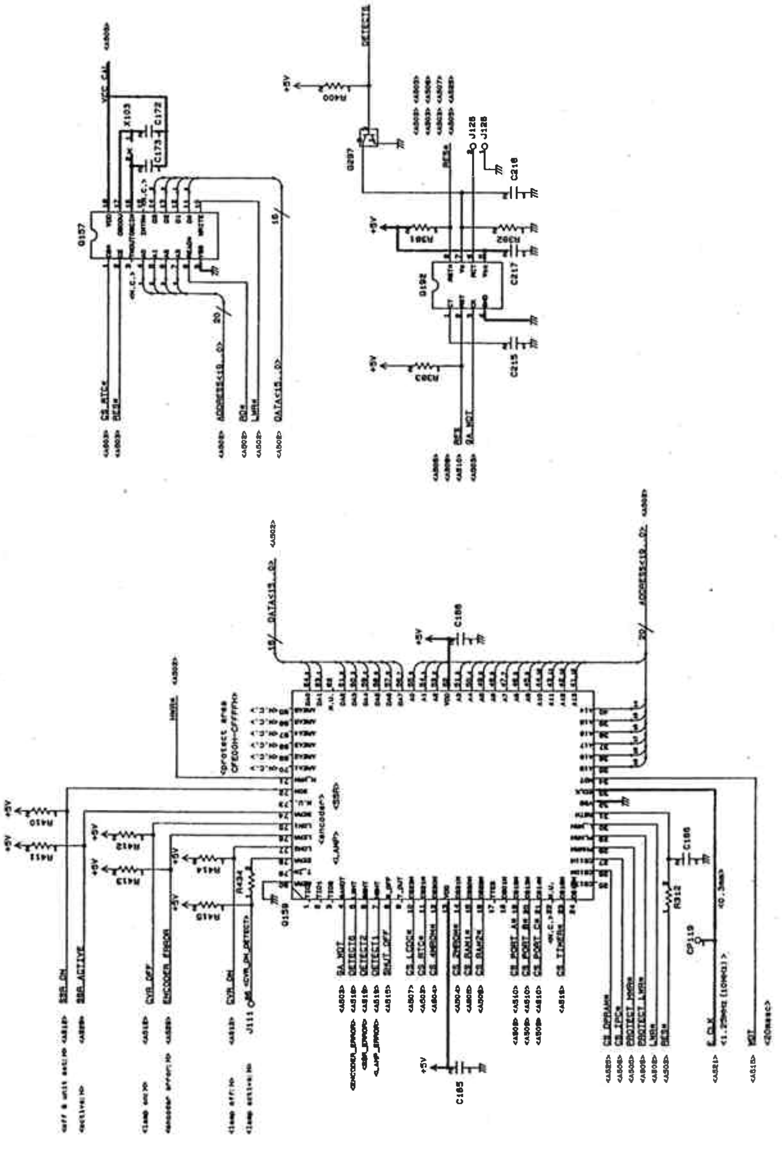
DATA<15..0>
LWR*
HWR*
RD*
RES*
R309
R246
R311
R310
C171
C176
C177
C178
C179
C181
C182
X104
RA129
RA130
RA131
RA132
RA135
+5V

DC Controller [A503] (2/29)


Q157
X103
C172
C173
VCC_CAL
CS_RTC*
RES*
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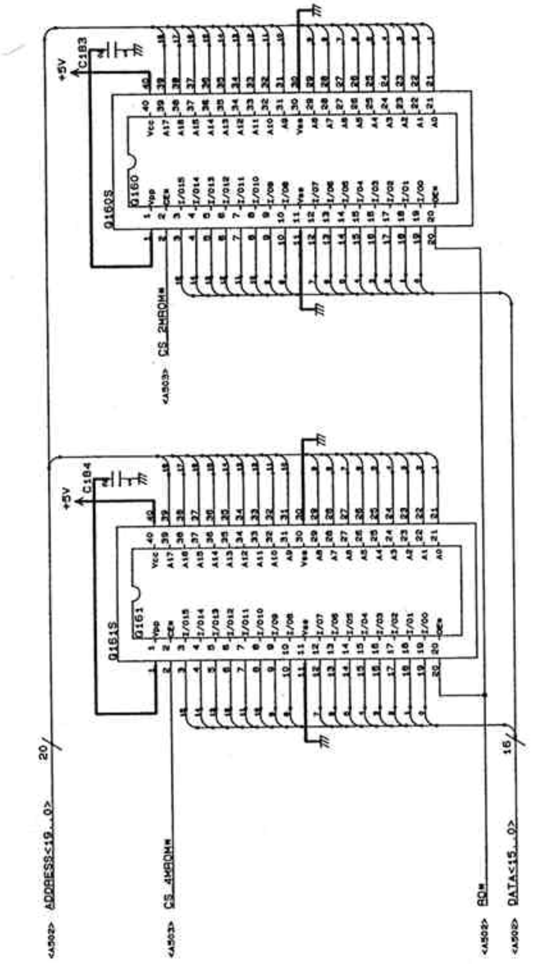
RD*
LWR*
DATA<15..0>
DETECT5
R400
Q297
J125
J126
C216
R391
R392
C217
Q192
C215
R393
RES
9A_WDT
+5V
C166
DATA<15..0>
ADDRESS<19..0>
R410
R411
R412
R413
R414
R415
R434
Q159
J111
SSR_ON
SSR_ACTIVE
CVR_OFF
ENCODER_ERROR
CVR_ON
9A_WDT
DETECT5
DETECT2
DETECT1
SHUT_OFF
CS_LCOCK
CS_RTC*
C165
CS_DPRAM*
CS_IPC*
PROTECT_HWR*
PROTECT_LWR*
LWR*
RES*
R312
CP119
C186
E_CLK
WDT

DC Controller [A504] (3/29)



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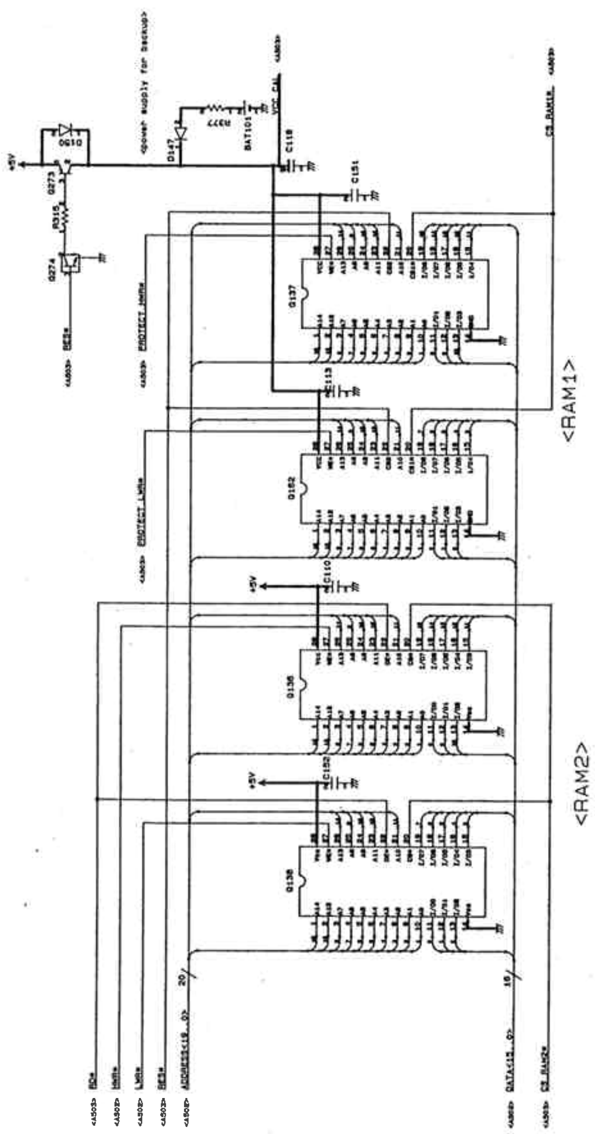
<A503> CS_2MROM*
<A503> CS_4MROM*
<A502> RD*
<A502> DATA<15..0>
16
+5V
C183
C184
Q160S
Q160
Q161S
Q161
Vpp
CE*
OE*
Vcc
Vss

DC Controller [A505] (4/29)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D210
Q273
R315
Q274
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D147
R377
BAT101
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C118
C151
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Q137
C113
<A503> PROTECT_LWR*
Q152
C110
+5V
Q136
C152
+5V
Q138
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<RAM1>
<RAM2>
<A503> RD*
<A502> HWR*
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<A503> RES*
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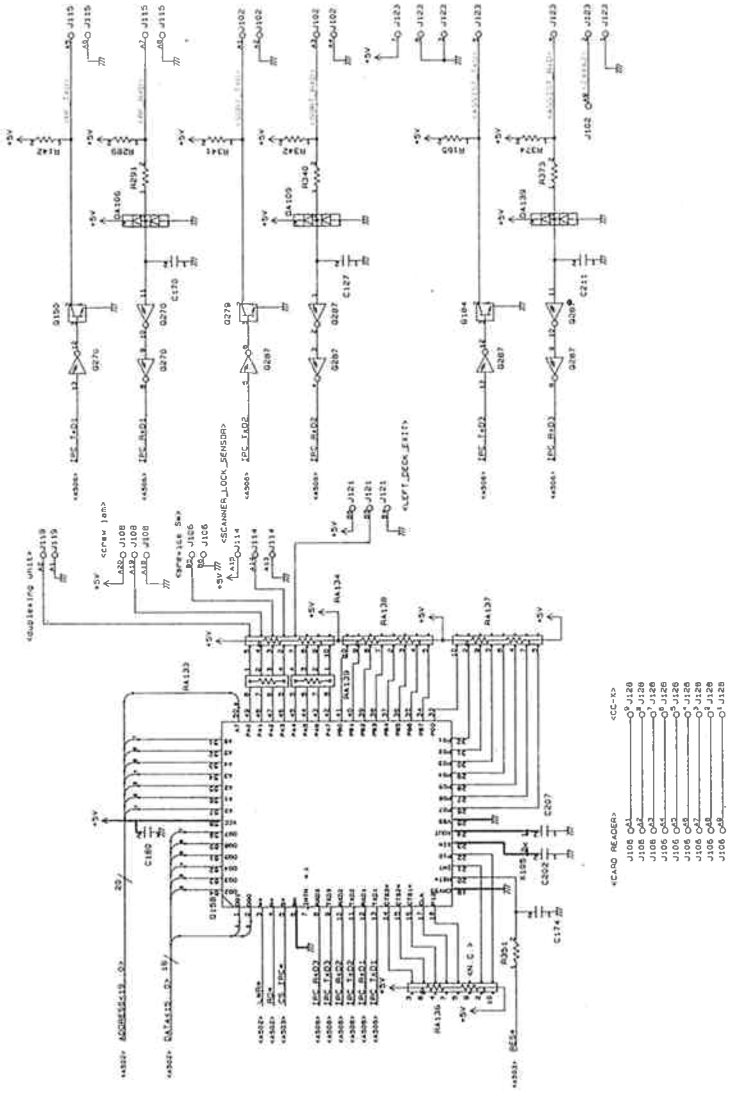
<A502> DATA<15...0>
<A503> CS_RAM2*

DC Controller [A506] (5/29)



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<CARD READER>
<CC-X>
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J102
J123
J121
J119
J108
J106
J114
J105
J126
J162
Q150
Q270
Q279
Q287
Q184
Q158
R142
R289
R341
R342
R165
R374
R291
R340
R373
R351
R165
DA106
DA105
DA139
C170
C127
C211
C180
C207
C202
C174
RA133
RA134
RA138
RA137
RA139
RA136
IPC_TxD1
IPC_RxD1
IPC_TxD2
IPC_RxD2
IPC_TxD3
IPC_RxD3
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RES*
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<A502>
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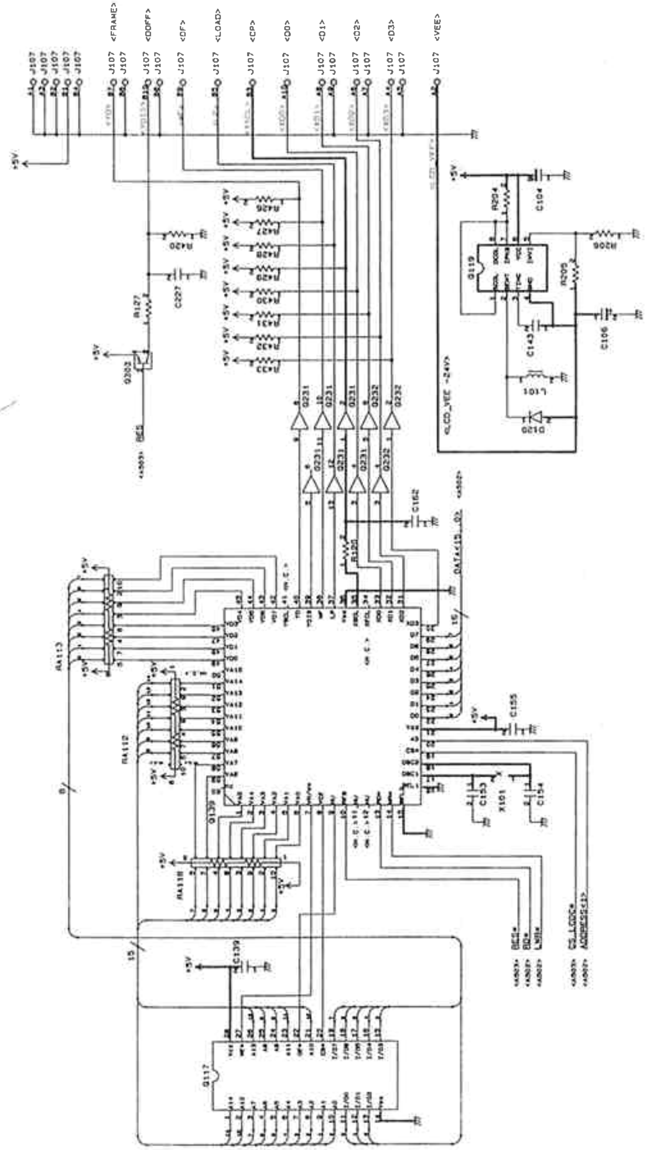
DC Controller [A507] (6/29)



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<D3>
<VEE>
+5V
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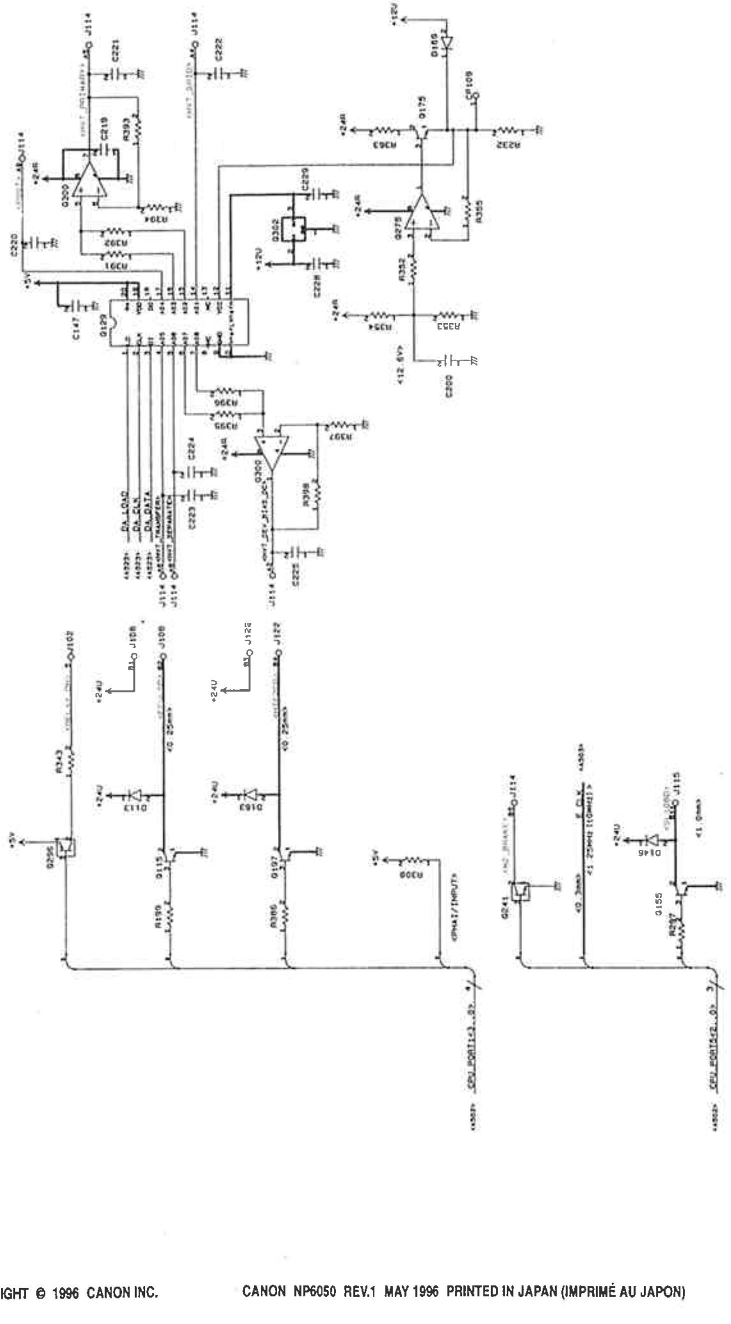
C227
R127
Q202
RES
R426
R427
R428
R429
R430
R431
R432
R433
Q231
Q232
C162
R120
DATA<15..0>
Q119
R204
R205
R206
C104
C106
C143
L101
D210
<LCD_VEE -24V>
RA113
RA112
RA118
Q139
C155
C153
X101
C154
C139
Q117
RES*
RD*
LWR*
CS_LCDC*
ADDRESS<1>
8
15

DC Controller [A508] (7/29)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C221
C222
+12V
D166
CR109
Q175
R363
R232
+24R
Q200
C219
R393
C220
R394
R392
R391
+5V
C147
Q129
C229
Q302
C228
R355
Q275
R352
R354
R353
<12.6V>
C200
R396
R395
R397
R398
C224
C223
C225
DA_LOAD
DA_CLK
DA_DATA
J102
J108
J122
+24V
R343
D110
D163
Q115
Q197
R190
R386
Q256
R309
<PHA1/INPUT>
Q241
J115
D146
Q155
R287
E_CLK
<0.25mm>
<0.3mm>
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<1.25MHz (10MHz)>
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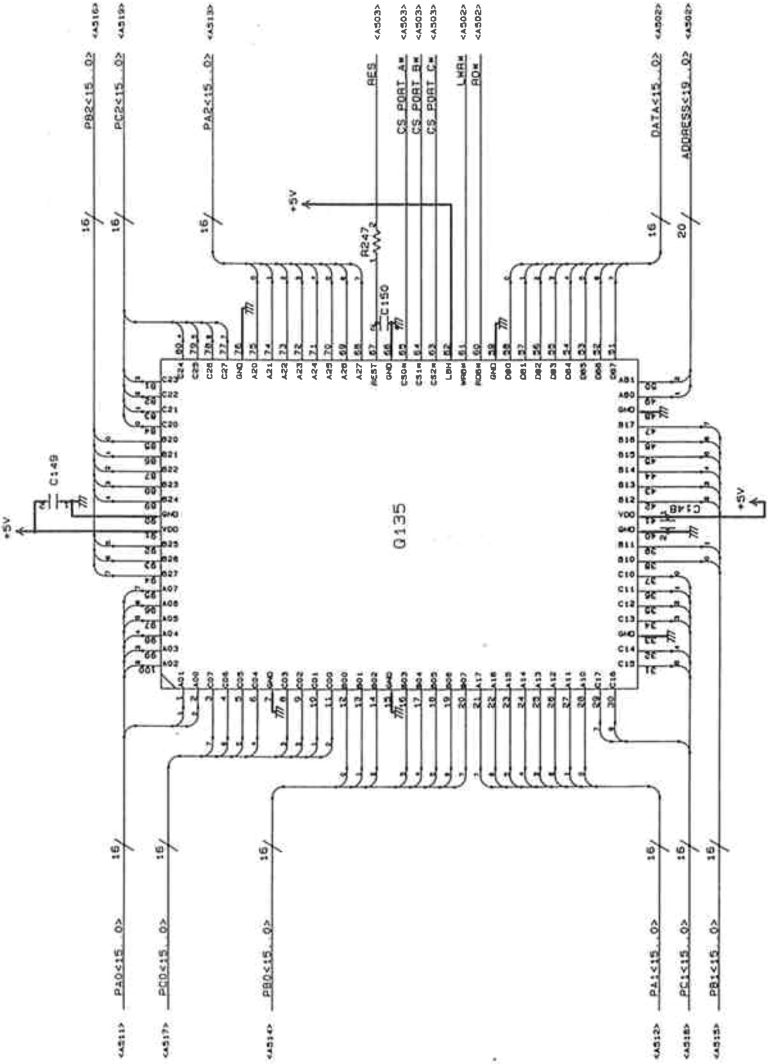
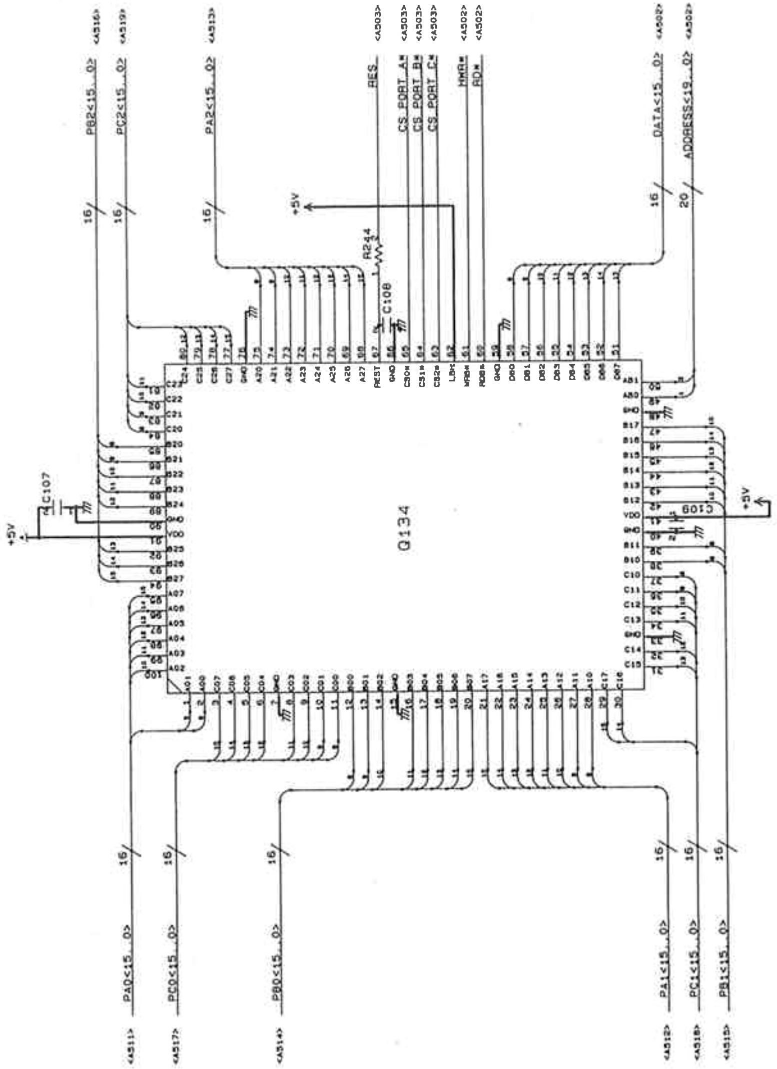
CPU_PORT5<2..0>

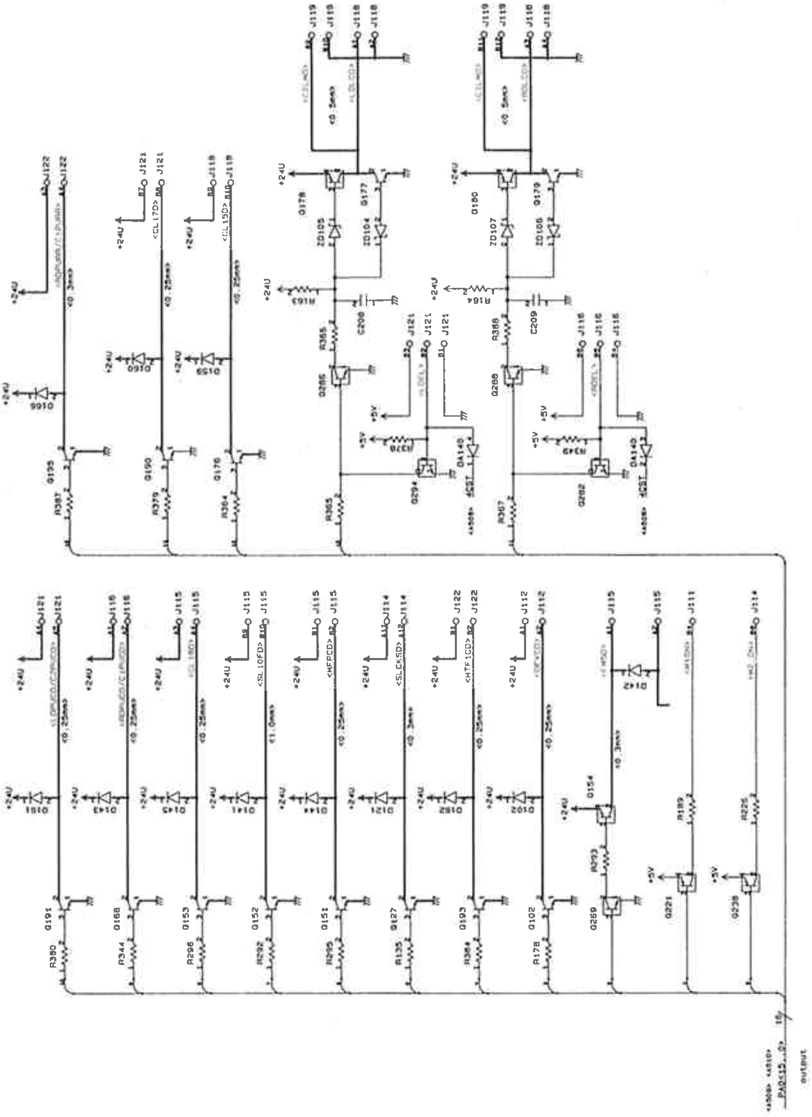
DC Controller [A509] (8/29)


Q135
PB2<15..0> <A516>
PC2<15..0> <A519>
PA2<15..0> <A513>
RES <A503>
CS_PORT_A* <A503>
CS_PORT_B* <A503>
CS_PORT_C* <A503>
LWR* <A502>
RD* <A502>
DATA<15..0> <A502>
ADDRESS<19..0> <A502>
PA0<15..0> <A511>
PC0<15..0> <A517>
PB0<15..0> <A514>
PA1<15..0> <A512>
PC1<15..0> <A518>
PB1<15..0> <A515>
R247
C149
C150
C148
+5V
16
20

DC Controller [A510] (9/29)

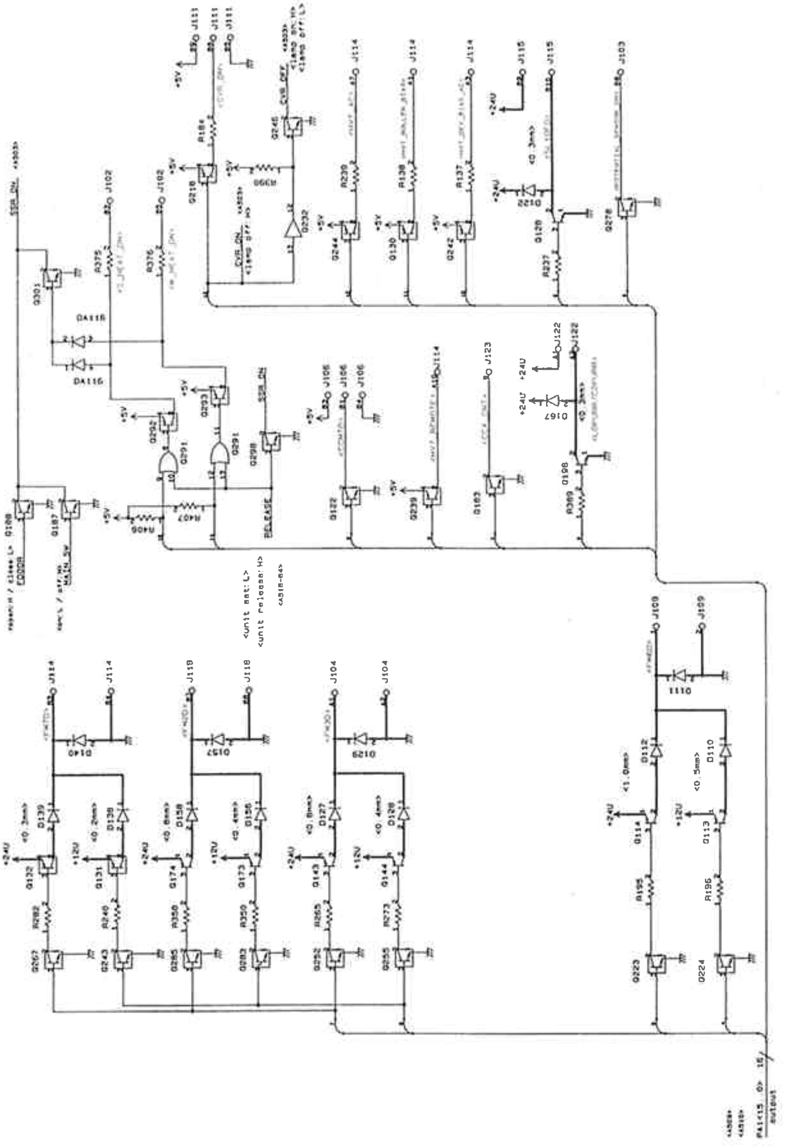

PB2<15..0> <A516>
PC2<15..0> <A519>
PA2<15..0> <A513>
RES_ <A503>
CS_PORT_A* <A503>
CS_PORT_B* <A503>
CS_PORT_C* <A503>
WRH* <A502>
RD* <A502>
DATA<15..0> <A502>
ADDRESS<19..0> <A502>
16
20
+5V
R244
C106
C107
C109
Q134
PA0<15..0> <A511>
PC0<15..0> <A517>
PB0<15..0> <A514>
PA1<15..0> <A512>
PC1<15..0> <A518>
PB1<15..0> <A515>

DC Controller [A511] (10/29)

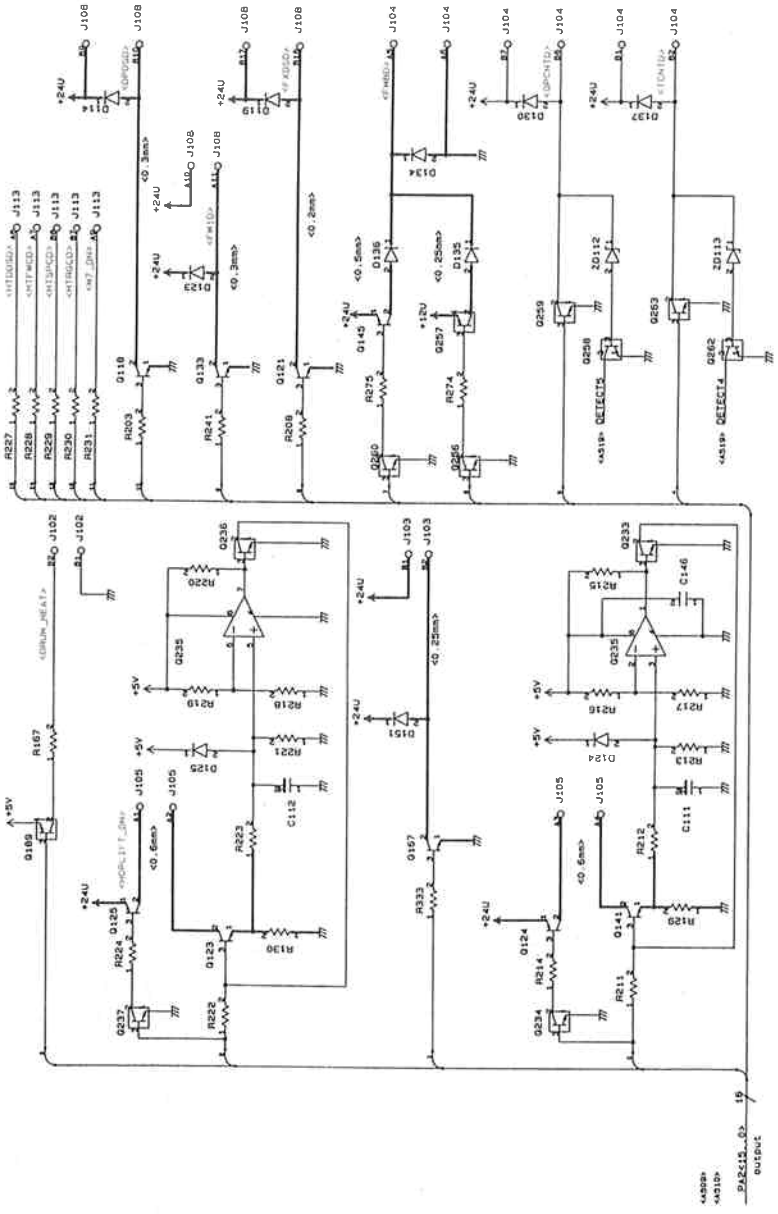


Q191
Q168
Q153
Q152
Q151
Q127
Q193
Q102
Q269
Q221
Q238
Q154
Q195
Q190
Q176
Q266
Q268
Q294
Q262
Q178
Q177
Q180
Q179
ZD105
ZD104
ZD107
ZD106
DA140
C208
C209
R163
R164
R365
R366
R367
R369
R387
R379
R364
R380
R344
R296
R292
R295
R135
R384
R178
R293
R189
R226
J111
J112
J114
J115
J116
J118
J119
J121
J122
+24V
+5V
<SL10FD>
<HFPCD>
<SLCKSD>
<HTF1CD>
<CL17D>
<CL15D>
<0.25mA>
<0.3mA>
<1.0mA>
<0.5mA>
PAD[15..0]
output

DC Controller [A512] (11/29)

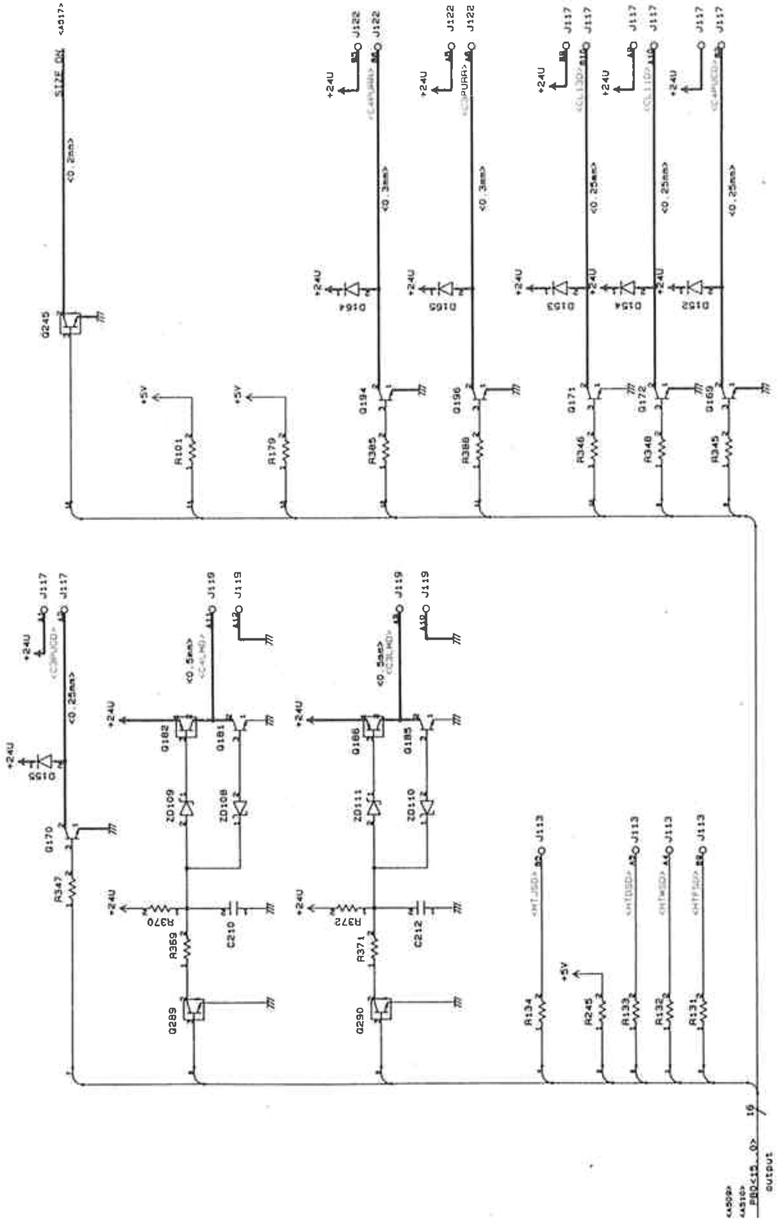

J111
J114
J115
J103
J102
J122
J123
J106
J118
J104
J109
+5V
+12V
+24V
Q301
DA116
Q218
R184
Q245
Q232
R399
CVR_ON
CVR_OFF
Q244
Q130
Q242
R239
R138
R137
Q128
R237
Q278
Q292
Q293
Q291
Q298
SSR_ON
R375
R376
Q188
Q187
R406
R407
EDOOR
MAIN_SW
RELEASE
Q122
Q239
Q163
Q198
R369
D167
<unit set:L>
<unit release:H>
Q132
Q131
Q174
Q173
Q143
Q144
D139
D138
D158
D156
D127
D128
D140
D157
D129
R282
R240
R358
R350
R265
R273
Q267
Q243
Q285
Q283
Q252
Q255
Q114
Q113
D112
D110
I110
R195
R196
Q223
Q224
PA1<15 0> 16
output

DC Controller [A513] (12/29)

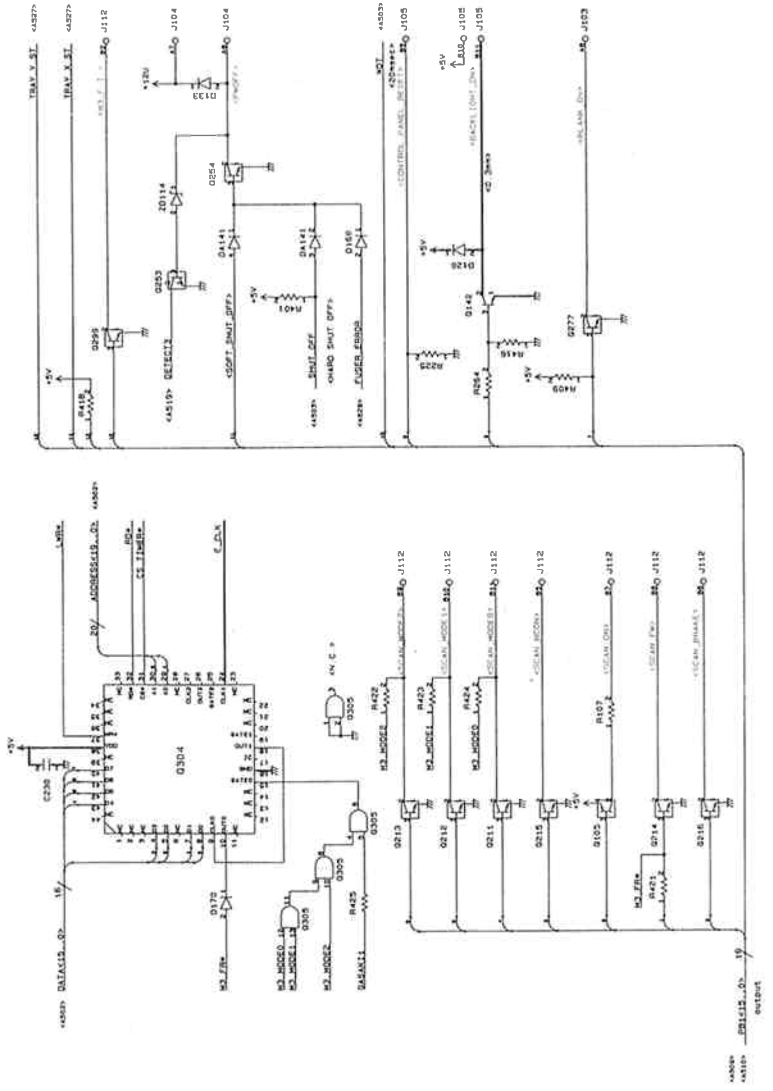


J108
J113
J104
J102
J103
J105
+24U
+12U
+5V
Q118
Q133
Q121
Q145
Q257
Q259
Q263
Q258
Q262
Q260
Q256
Q236
Q233
Q235
Q189
Q125
Q123
Q237
Q157
Q124
Q141
Q234
R227
R228
R229
R230
R231
R203
R241
R208
R275
R274
R220
R219
R218
R221
R223
R167
R224
R222
R130
R333
R215
R216
R217
R213
R212
R211
R214
R129
C112
C111
C146
D114
D119
D123
D134
D136
D135
D130
D137
ZD112
ZD113
D125
D151
D124
<0.3mm>
<0.2mm>
<0.5mm>
<0.25mm>
<0.6mm>
DETECT5
DETECT4
<A519>
<DRUM_HEAT>
<A509>
<A510>
PA2<15..0>
output
15

DC Controller [A514] (13/29)

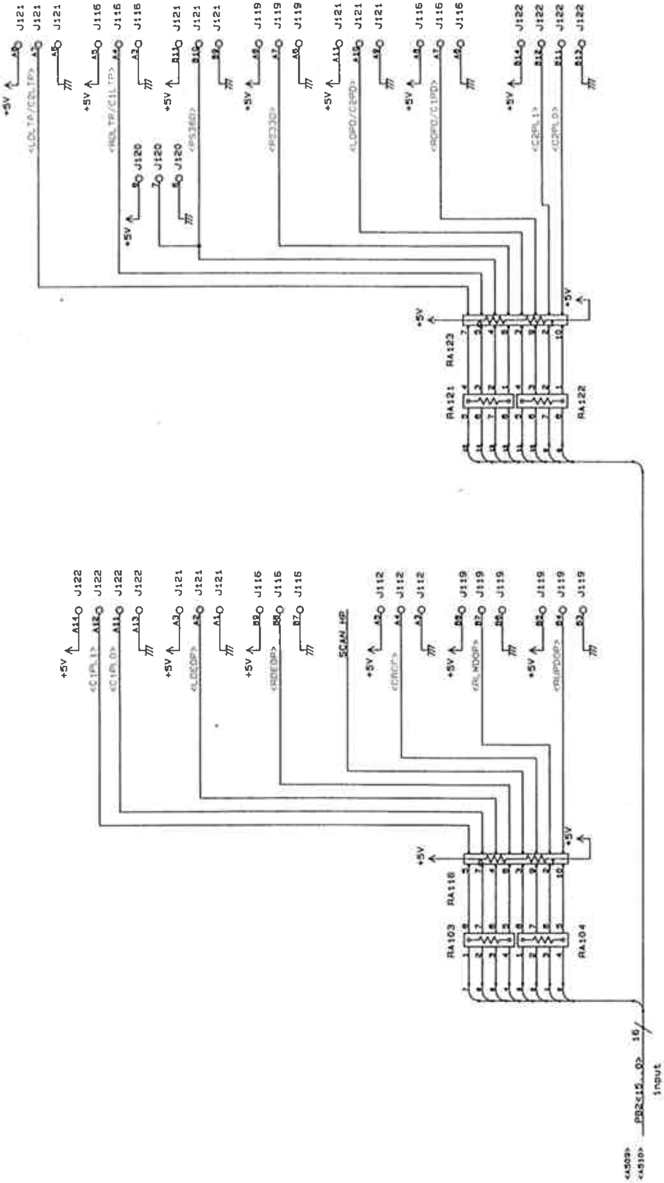

SIZE ON
<A517>
<0.2mm>
Q245
+5V
R101
R179
+24V
J122
<0.3mm>
D164
D165
Q194
Q196
R385
R388
J117
<0.25mm>
D153
D154
D152
Q171
Q172
Q169
R346
R348
R345
D155
Q170
R347
J119
<0.5mm>
Q182
Q181
ZD109
ZD108
Q186
Q185
ZD111
ZD110
R370
R369
C210
R372
R371
C212
Q289
Q290
J113
R134
R245
R133
R132
R131
16
<A509>
<A516>
PBO<15..0>
output

DC Controller [A515] (14/29)



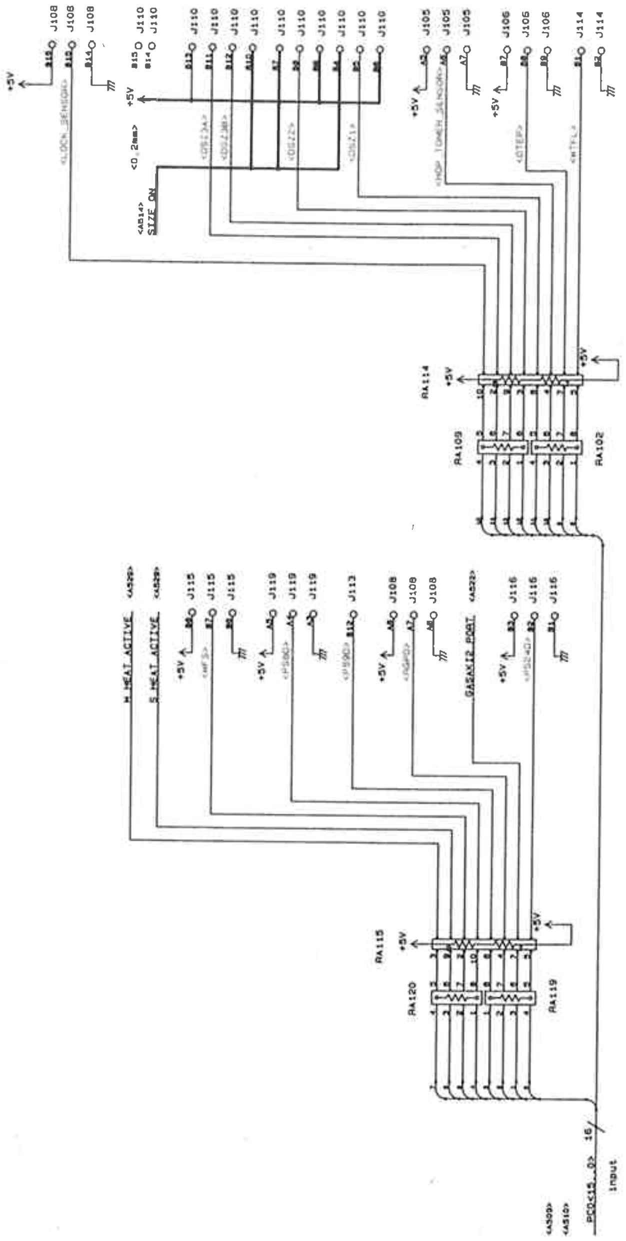
DATA<15..0>
<A502>
16
C230
+5V
LWR*
20
ADDRESS<19..0>
RD*
CS_TIMER*
E_CLK
Q304
H3_FR*
D170
H3_MODE0
H3_MODE1
H3_MODE2
Q305
R425
DASAKI1
<N.C.>
R422
R423
R424
R107
R421
Q213
Q212
Q211
Q215
Q105
Q714
Q216
<SCAN_MODE2>
<SCAN_MODE1>
<SCAN_MODE0>
<SCAN_MCON>
<SCAN_ON>
<SCAN_FW>
<SCAN_PHASE>
J112
PB1<15..0>
19
output
<A509>
<A510>
TRAY_Y_ST
TRAY_X_ST
<A527>
R418
Q299
DETECT3
<A519>
Q253
ZD114
+12V
D133
J104
<PWOFF>
Q254
<SOFT_SHUT_OFF>
DA141
R401
SHUT_OFF
<HARD SHUT OFF>
<A503>
FUSER_ERROR
<A528>
D168
WDT
<20msec>
<CONTROL_PANEL_RESET>
J105
R225
D128
Q142
R264
R416
<BACKLIGHT_ON>
<0.3ms>
R409
Q277
<BLANK_ON>
J103

DC Controller [A516] (15/29)

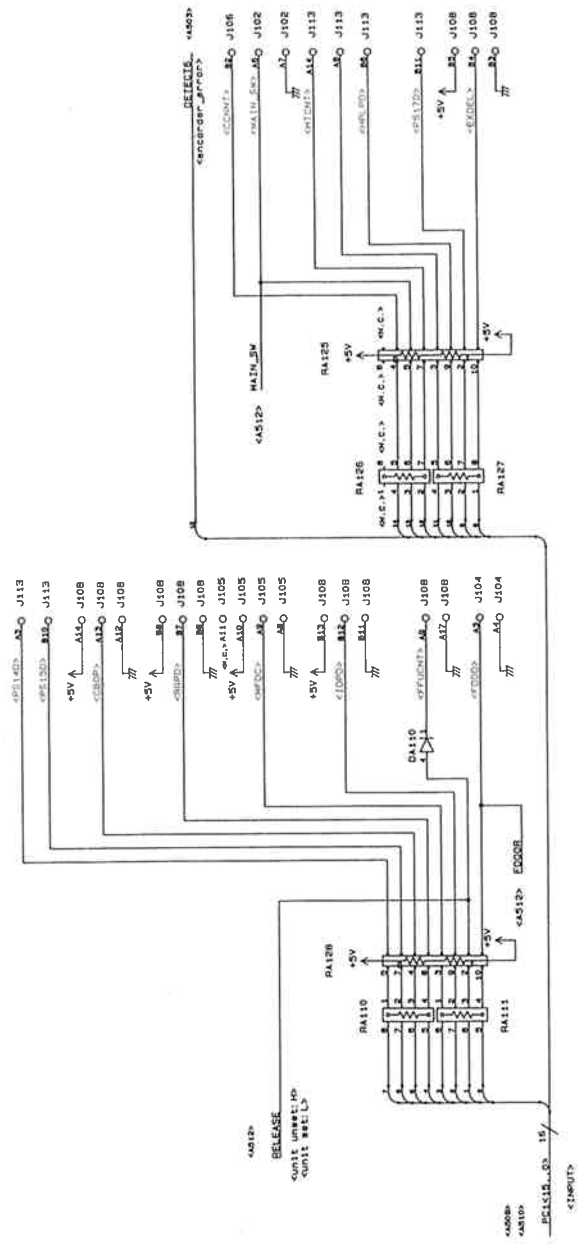


<A509>
<A510>
PB2<15..0>
input
16
RA103
RA116
RA104
RA121
RA123
RA122
+5V
<C1PL1>
<C1PL0>
<LDEOP>
<RDEOP>
SCAN_HP
<DRCF>
<RLHDOP>
<RUPDOP>
<LDLTP/C2LTP>
<RDLTP/C1LTP>
<PS360>
<PS330>
<LDPD/C2PD>
<RDPD/C1PD>
<C2PL1>
<C2PL0>
J122
J121
J116
J112
J119
J120

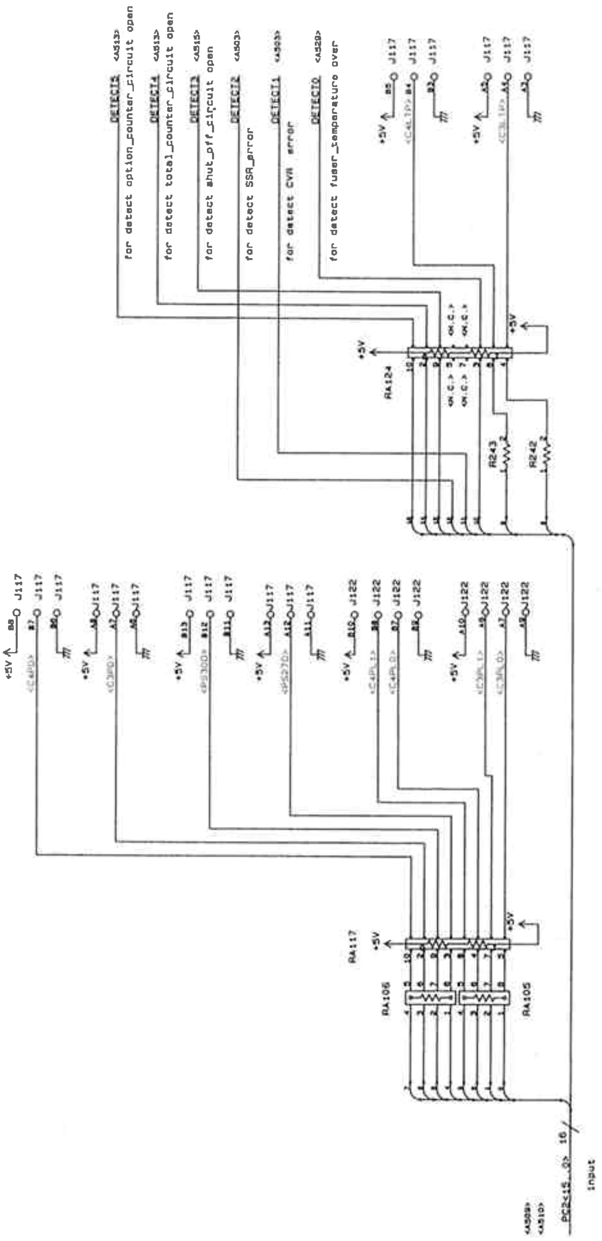
DC Controller [A517] (16/29)


J108
J108
J108
J110
J110
J110
J110
J110
J110
J110
J110
J110
J110
J110
J110
J105
J105
J105
J106
J106
J106
J114
J114
+5V
<LOCK_SENSOR>
<0.2mm>
<A514>
SIZE_ON
<DS23A>
<DS23B>
<DS22>
<DS21>
<HOP_TONER_SENSOR>
<DTEP>
<HTFL>
RA114
RA109
RA102
M_HEAT_ACTIVE <A529>
S_HEAT_ACTIVE <A529>
J115
J115
J115
J119
J119
J119
J113
J108
J108
J108
GASAKI2_PORT <A522>
J116
J116
J116
<HFS>
<PS8D>
<PS9D>
<GAPD>
<PS24D>
RA115
RA120
RA119
16
<A509>
<A510>
PCD<15..0>
input

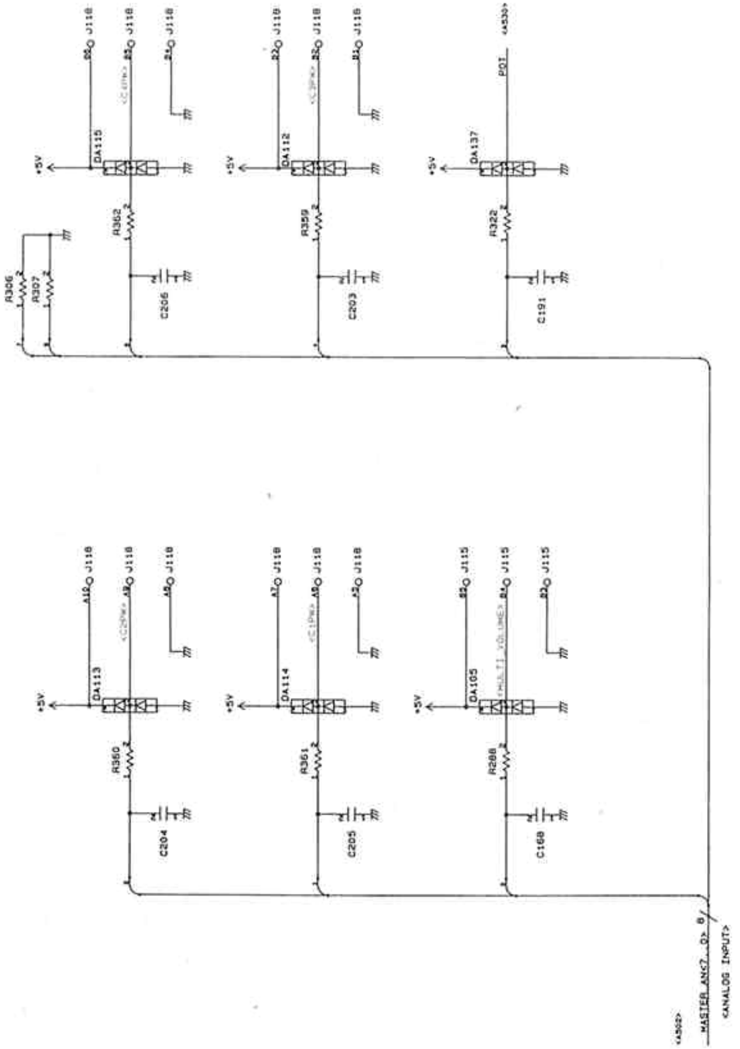
DC Controller [A518] (17/29)


DETECT6
<encorder_error>
<A503>
<CCNT>
<MAIN_SW>
<HICNT>
<HPLPD>
<PS17D>
<EXDEL>
B2 J106
A5 J102
A7 J102
A14 J113
A8 J113
B6 J113
B11 J113
B3 J108
B4 J108
B2 J108
+5V
MAIN_SW
<A512>
RA125
RA126
RA127
<N.C.>
<PS14D>
<PS15D>
<CBDP>
<RBPD>
<MFDC>
<IDPD>
<FFUCNT>
<FDDD>
A3 J113
B10 J113
A14 J108
A13 J108
A12 J108
B8 J108
B7 J108
B6 J108
<N.C.> A11 J105
A10 J105
A9 J105
A8 J105
B13 J108
B12 J108
B11 J108
A8 J108
A17 J108
A3 J104
A4 J104
DA110
EDOOR
<A512>
RA128
RA110
RA111
<A512>
RELEASE
<unit unset: H>
<unit set: L>
<A508>
<A510>
PC<15..0>
15
<INPUT>

DC Controller [A519] (18/29)

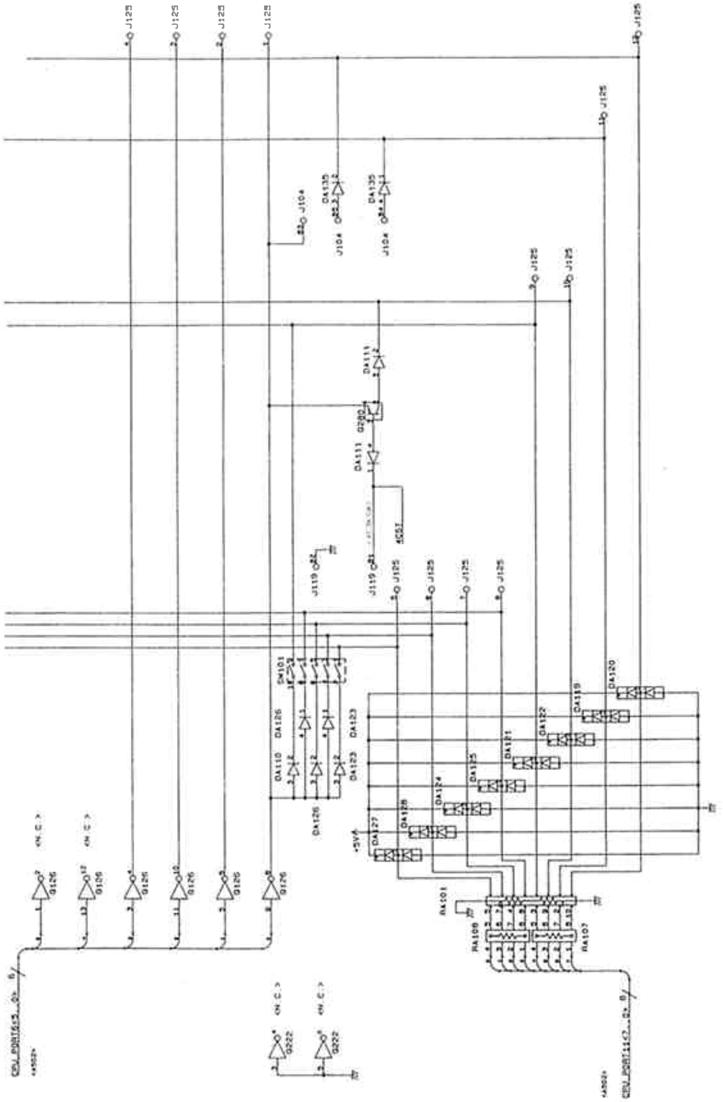

DETECT5 <A513> for detect option_counter_circuit open
DETECT4 <A513> for detect total_counter_circuit open
DETECT3 <A515> for detect shut_off_circuit open
DETECT2 <A503> for detect SSR_error
DETECT1 <A503> for detect CVR error
DETECT0 <A520> for detect fuser_temperature over
+5V
B5 J117
<C4LTP> B4 J117
B3 J117
A5 J117
<C3LTP> A4 J117
A3 J117
<N.C.>
RA124
R243
R242
B8 J117
<C4PD> B7 J117
B6 J117
A8 J117
<C3PD> A7 J117
A6 J117
B13 J117
<PS30D> B12 J117
B11 J117
A13 J117
<PS27D> A12 J117
A11 J117
B10 J122
<C4PL1> B8 J122
<C4PL0> B7 J122
B6 J122
A10 J122
<C3PL1> A8 J122
<C3PL0> A7 J122
A6 J122
RA117
RA106
RA105
<A509>
<A510>
PCR<15..0> 16
input

DC Controller [A520] (19/29)

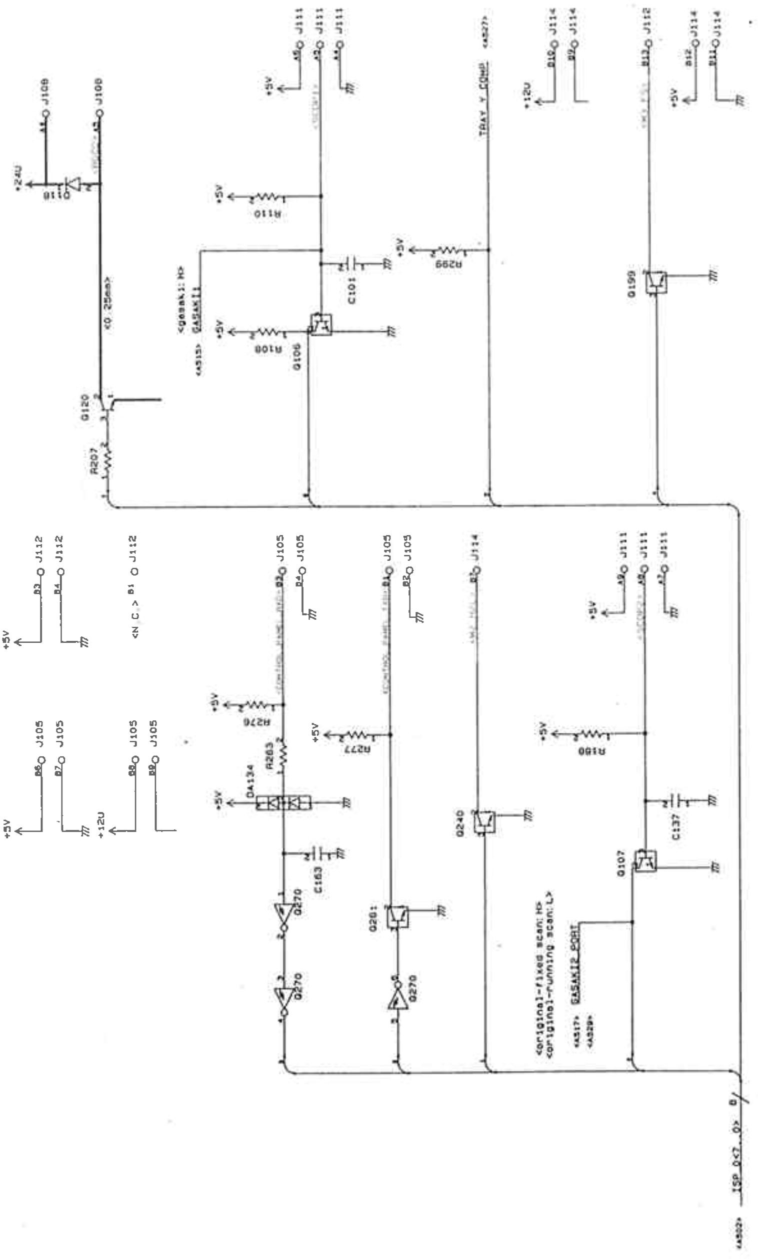


J118
DA115
DA112
DA137
DA113
DA114
DA105
+5V
R306
R307
R352
R359
R322
R360
R361
R288
C206
C203
C191
C204
C205
C168
POI
<A530>
A10
A8
A6
A7
A5
A3
B5
B4
B3
J115
<MULTI_VOLUME>
<A502>
MASTER_AN<7..0>
8
<ANALOG INPUT>

DC Controller [A521] (20/29)

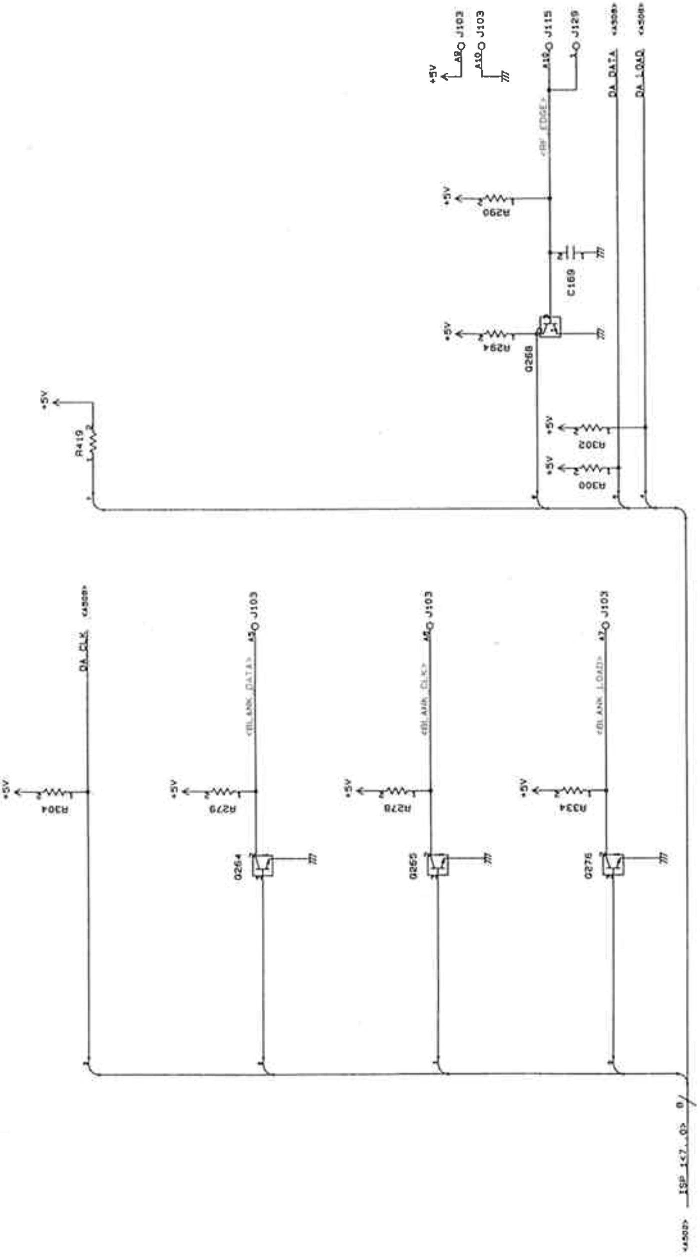

J125
J104
J119
DA135
DA111
Q280
4C57
SW101
DA110
DA126
DA123
DA127
DA128
DA124
DA125
DA121
DA122
DA119
DA120
RA101
RA106
RA107
Q126
Q222
<N.C.>
+5V4
CPU PORT

DC Controller [A522] (21/29)

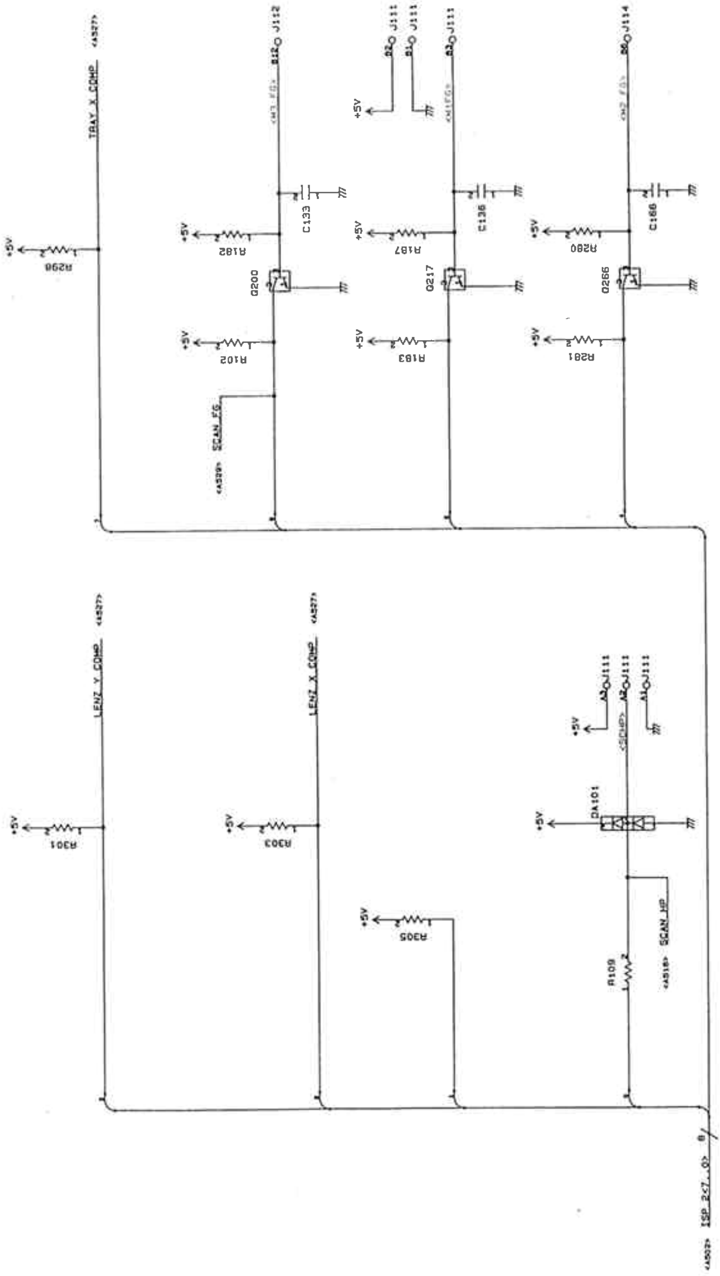


J108
J108
+24V
D118
Q120
R207
<0.25ms>
J111
J111
J111
+5V
R110
R108
Q106
C101
<A515>
<gasaki1:H>
GASAKI1
TRAY Y COMP
<A527>
R299
J114
J114
+12U
J112
J114
J114
Q199
J112
J112
<N.C.>
J105
J105
J105
J105
+12U
R276
R263
DA134
C163
Q270
Q270
R277
Q261
Q270
Q240
R180
C137
Q107
<original-fixed scan:H>
<original-running scan:L>
<A517>
<A529>
GASAKI2 PORT
ISP 0<7..0>
8
<A502>

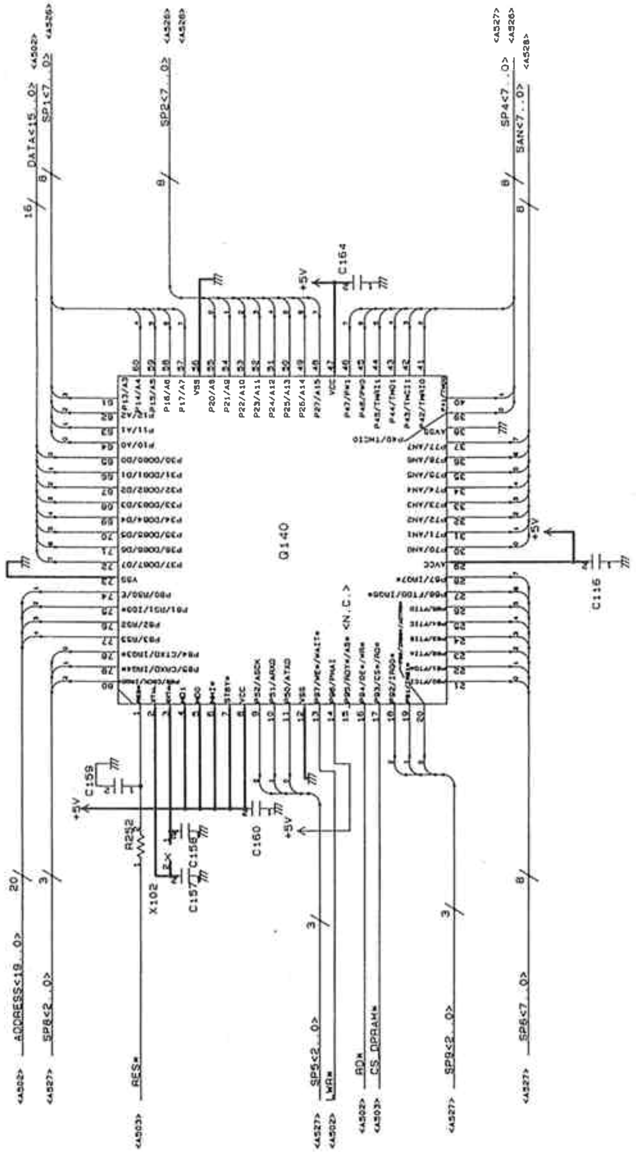
DC Controller [A523] (22/29)


+5V
A8
J102
A19
J103
A10
J115
1
J126
DA DATA
<A508>
DA LOAD
<A508>
<RF EDGE>
R290
C169
R294
Q268
R419
R302
R300
DA CLK
<A508>
A5
J103
A6
J103
A7
J103
<BLANK DATA>
<BLANK CLK>
<BLANK LOAD>
R304
R279
R278
R334
Q264
Q265
Q276
8
ISP <7..0>
<A502>

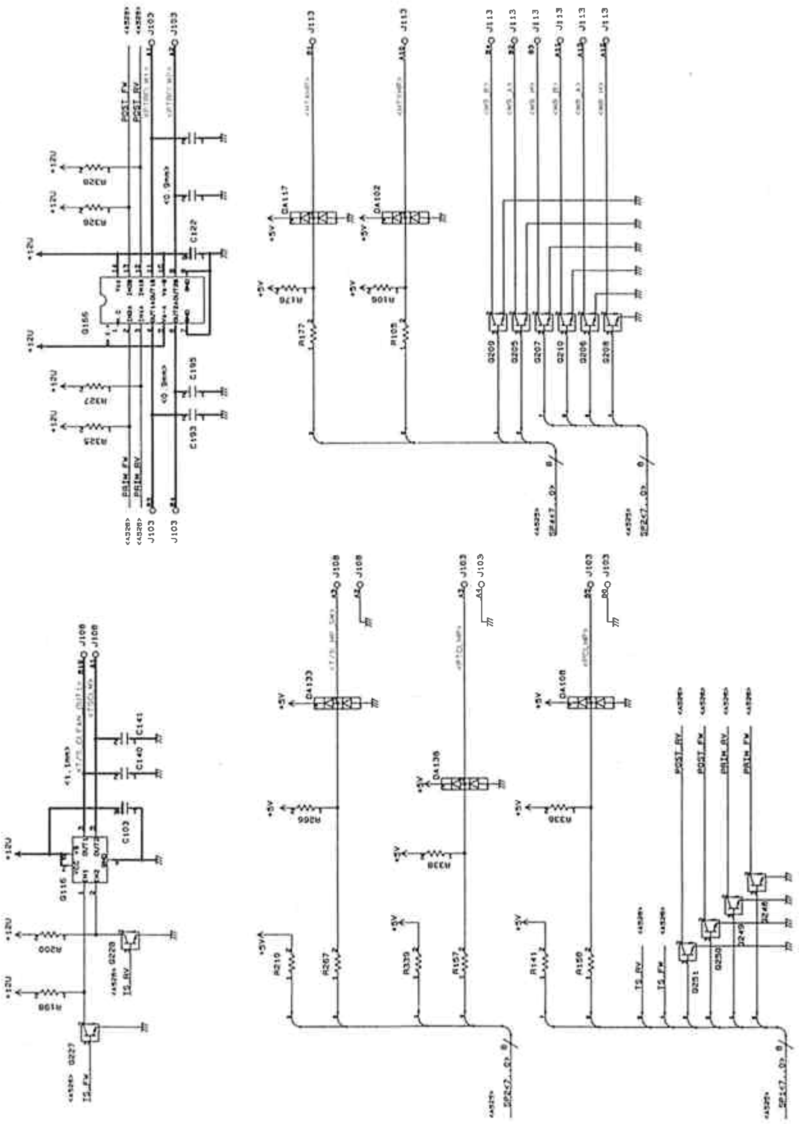
DC Controller [A524] (23/29)

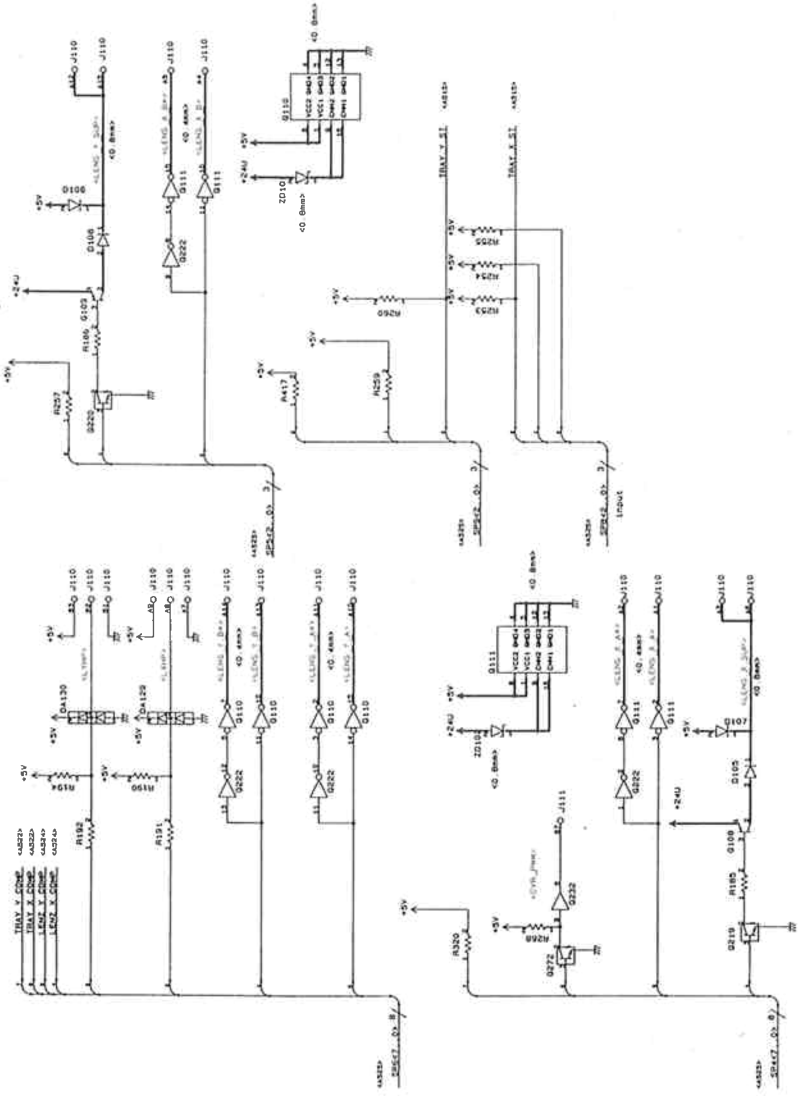

TRAY_X_COMP
<A527>
R298
+5V
J112
B12
<M3 FG>
C133
R182
Q200
R102
SCAN_FG
<A529>
J111
B2
B1
B3
<M1FG>
C136
R187
Q217
R183
J114
B6
<M2 FG>
C166
R280
Q266
R281
LENZ_Y_COMP
<A527>
R301
LENZ_X_COMP
<A527>
R303
R305
DA101
A3
A2
A1
<SCHP>
R109
SCAN_HP
<A516>
ISP_2<7..0>
<A502>
8

DC Controller [A525] (24/29)

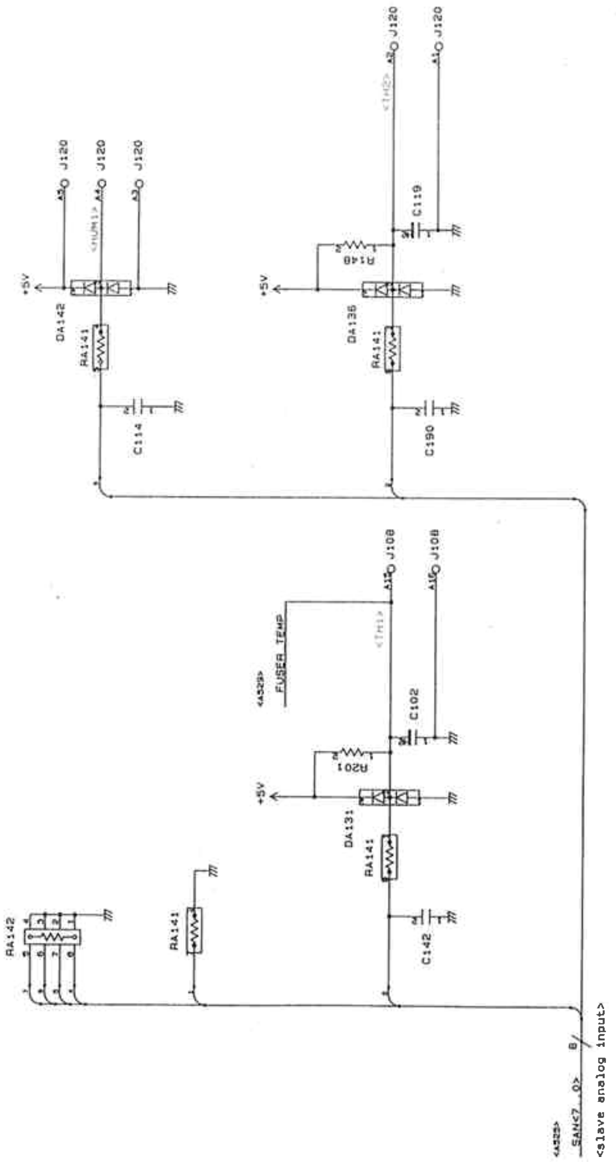

DATA<15..0> <A502>
SP1<7..0> <A526>
SP2<7..0> <A526> <A528>
SP4<7..0> <A527> <A526>
SAN<7..0> <A528>
16
8
C164
+5V
Q140
C116
<N.C.>
ADDRESS<19..0> <A502>
SP8<2..0> <A527>
RES* <A503>
SP5<2..0> <A527>
WR* <A502>
RD* <A502>
CS_DPRAM* <A503>
SP9<2..0> <A527>
SP6<7..0> <A527>
20
3
R252
C159
X102
C157
C156
C160

DC Controller [A526] (25/29)

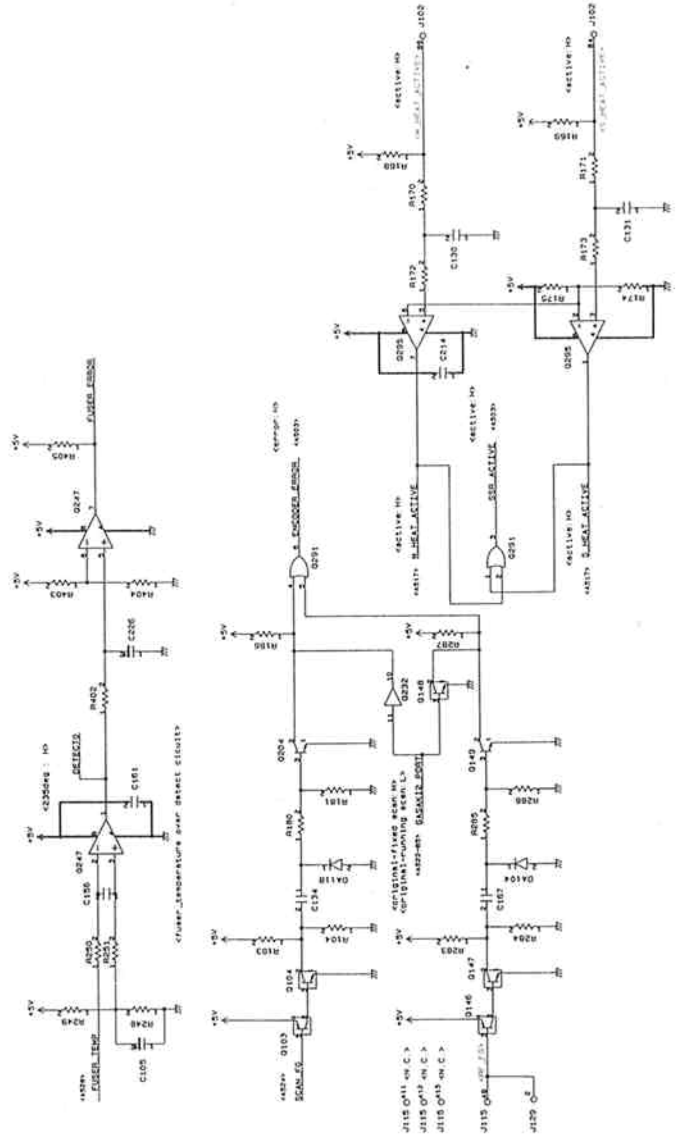

+12V
R325
R327
R326
R328
Q155
C193
C195
C122
PRIM_FW
PRIM_RV
POST_FW
POST_RV
J103
DA117
DA102
R176
R177
R105
R106
+5V
J113
Q200
Q205
Q207
Q210
Q206
Q208
SP2<7..0>
Q116
Q227
Q228
R198
R200
C103
C140
C141
IS_FW
IS_RV
J108
DA133
DA136
DA108
R266
R338
R336
R210
R267
R335
R157
R141
R156
Q251
Q250
Q249
Q248


J110
J111
Q110
Q111
Q222
Q232
Q103
Q108
Q219
Q220
Q272
D105
D106
D107
D108
ZD10
DA129
DA130
R106
R185
R190
R191
R192
R194
R253
R254
R255
R257
R259
R260
R268
R320
R417
+5V
+24V
TRAY_Y_SI
TRAY_X_SI
TRAY_Y_COMP
TRAY_X_COMP
LENZ_Y_COMP
LENZ_X_COMP
SP5<2..0>
SP6<2..0>
SP8<2..0>
SP6<7..0>
SP4<7..0>
Input
<0.6mm>

DC Controller [A528] (27/29)

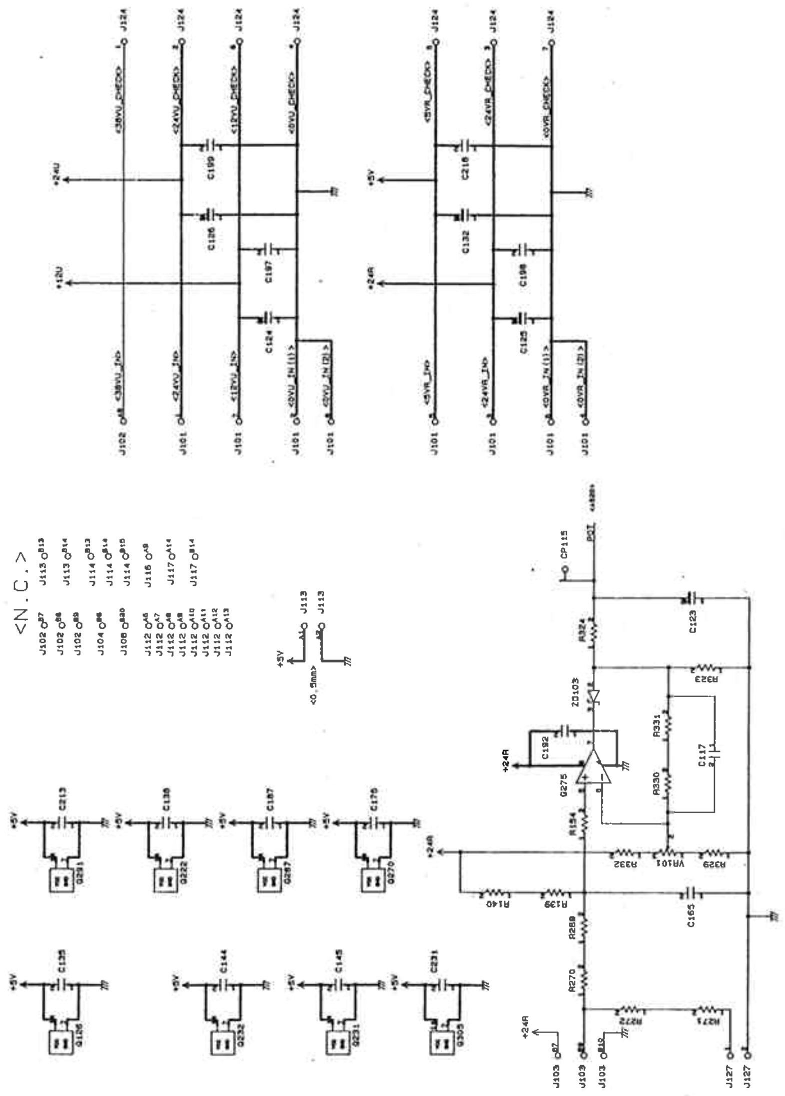

A5 J120
A4 J120
A3 J120
<HUM1>
+5V
DA142
RA141
C114
A2 J120
A1 J120
<TH2>
C119
R148
DA136
C190
A17 J108
A16 J108
<A529> FUSER TEMP
<TH1>
C102
R201
DA131
C142
RA142
<A525> SAN<7..0>
8
<slave analog input>

DC Controller [A529] (28/29)



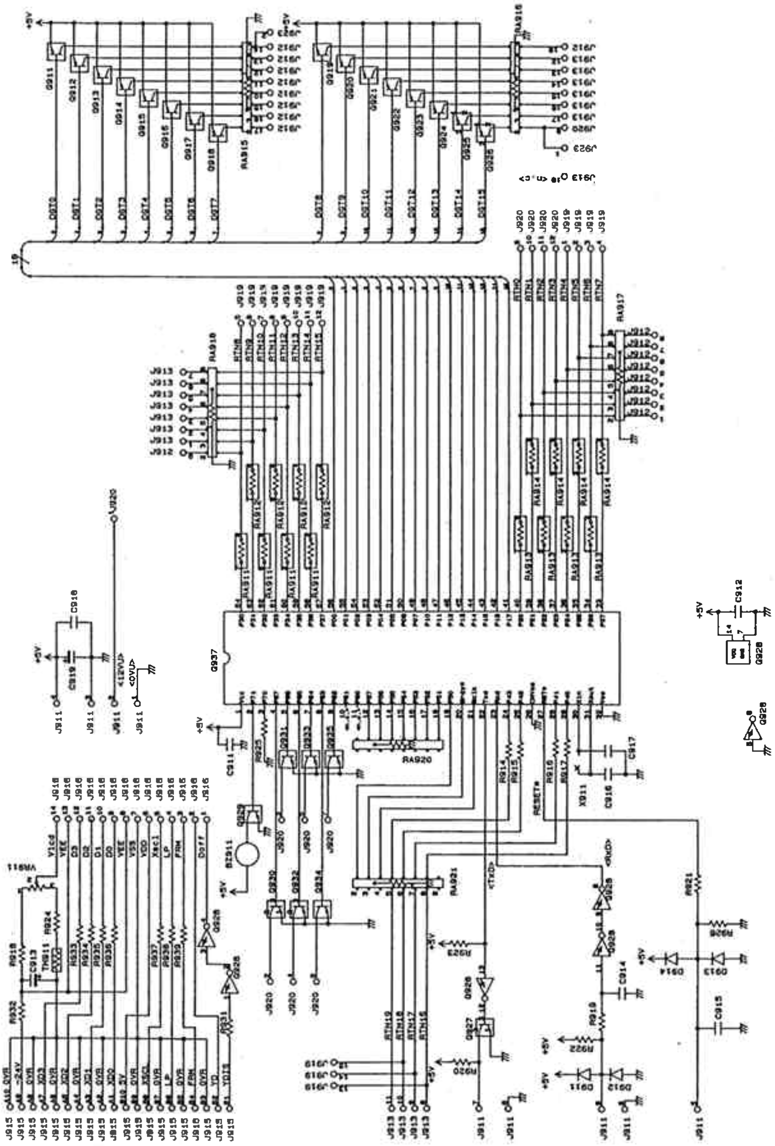
FUSER_TEMP
R249
R248
C105
R250
R251
C156
Q247
C161
<235deg : H>
DETECT0
<fuser_temperature over detect circuit>
R402
C226
R403
R404
Q247
R405
FUSER_FRROR
+5V
SCAN_FG
Q103
Q104
R103
R104
C134
DA118
R180
R181
Q204
R185
Q291
ENCODER_FRROR
<error H>
<original-fixed scan H>
<original-running scan L>
GASAKI2_PORT
Q232
Q148
R287
J115
N.C.
J129
Q146
Q147
R283
R284
C167
DA104
R285
R286
Q140
<active H>
M_HEAT_ACTIVE
SSR_ACTIVE
Q251
S_HEAT_ACTIVE
Q295
C214
R172
C130
R170
R168
M_HEAT_ACTIVE
J102
R175
R174
R173
C131
R171
R169
S_HEAT_ACTIVE

DC Controller [A530] (29/29)

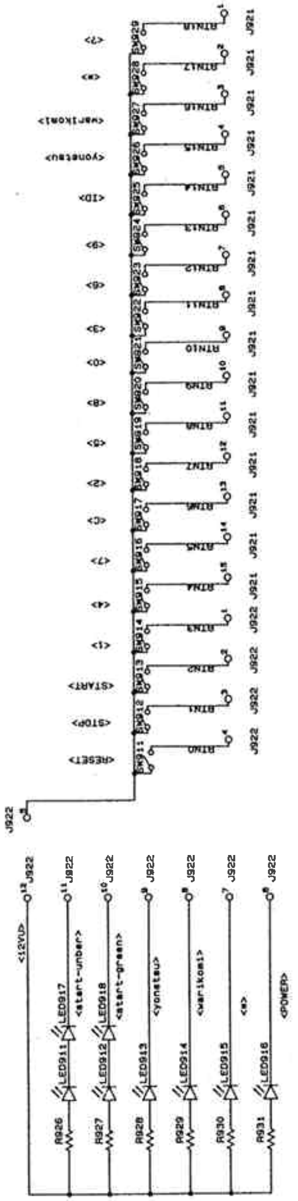


<38VU_CHECK>
<24VU_CHECK>
<12VU_CHECK>
<5VU_CHECK>
<5VR_CHECK>
<24VR_CHECK>
<0VR_CHECK>
<38VU_IN>
<24VU_IN>
<12VU_IN>
<0VU_IN(1)>
<0VU_IN(2)>
<5VR_IN>
<24VR_IN>
<0VR_IN(1)>
<0VR_IN(2)>
J124
J101
J102
J103
J113
J127
+24U
+12U
+5V
+24R
C199
C126
C197
C124
C216
C132
C198
C125
<N.C.>
<0.5mm>
CP115
POT
C123
R324
ZD103
R323
C192
Q275
R331
R330
C117
R154
R332
VR101
R329
R140
R139
C165
R289
R270
R272
R271
C213
C138
C187
C175
Q231
Q222
Q267
Q270
C135
C144
C145
C231
Q126
Q232
Q305

E. CONTROL PANEL CPU PCB

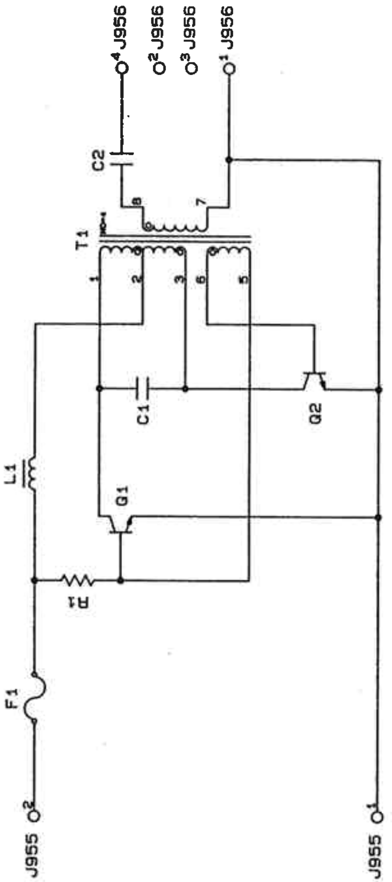

+5V
Q911
Q912
Q913
Q914
Q915
Q916
Q917
Q918
Q919
Q920
Q921
Q922
Q923
Q924
Q925
Q926
RA915
RA916
RA917
RA918
RA911
RA912
RA913
RA914
RA920
RA921
Q937
Q928
Q927
Q929
Q930
Q931
Q932
Q933
Q934
Q935
BZ911
C911
C912
C913
C914
C915
C916
C917
C918
C919
X911
RESET*
<TxD>
<RxD>
<12VU>
<0VU>
VR911
TH911
D911
D913
D914
J911
J912
J913
J915
J916
J919
J920
J923

F. CONTROL PANEL KEY PCB



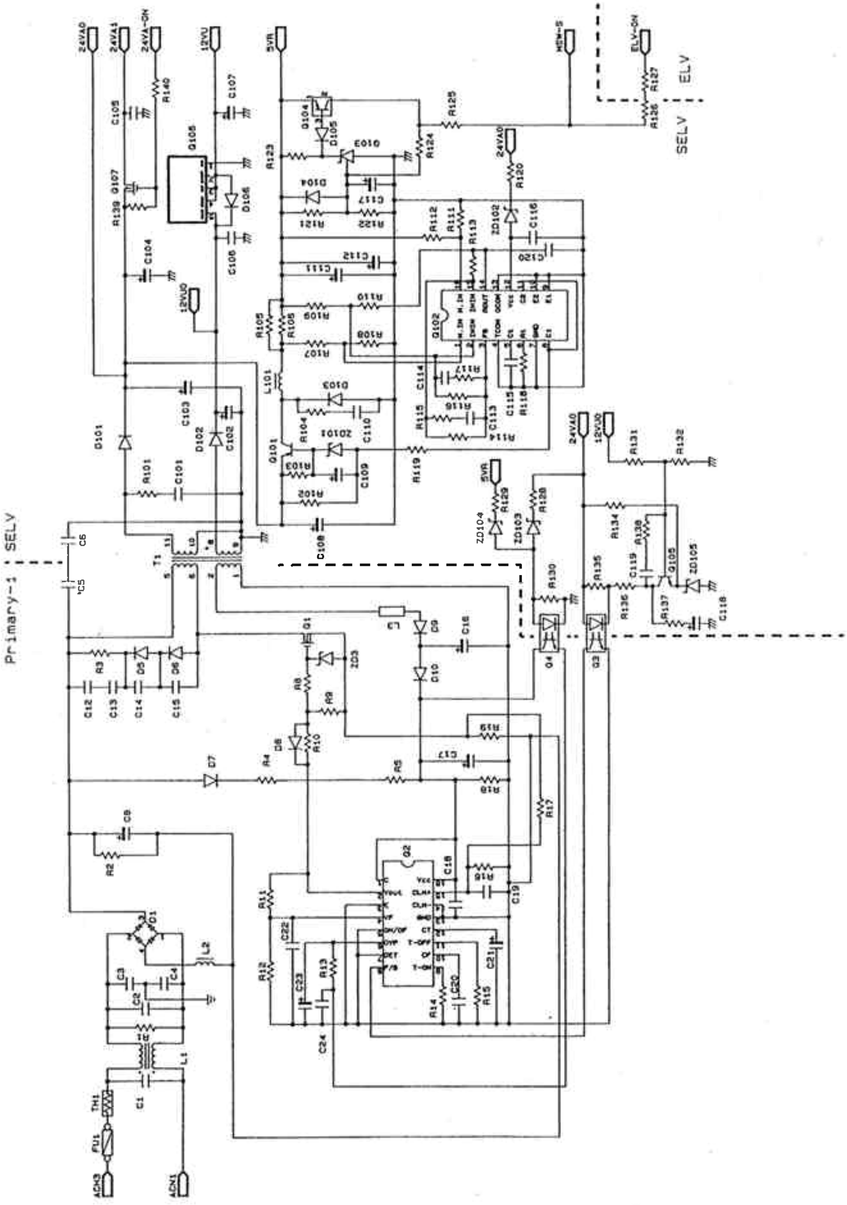
J921
J922
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
RTN0
RTN1
RTN2
RTN3
RTN4
RTN5
RTN6
RTN7
RTN8
RTN9
RTN10
RTN11
RTN12
RTN13
RTN14
RTN15
RTN16
RTN17
RTN18
SW911
SW912
SW913
SW914
SW915
SW916
SW917
SW918
SW919
SW920
SW921
SW922
SW923
SW924
SW925
SW926
SW927
SW928
SW929
<RESET>
<STOP>
<START>
<1>
<4>
<7>
<C>
<2>
<5>
<8>
<0>
<3>
<6>
<9>
<ID>
<yonetsu>
<warikomi>
<*>
<?>
<12VU>
LED911
LED917
<start-unber>
LED912
LED918
<start-green>
LED913
<yonetsu>
LED914
<warikomi>
LED915
<*>
LED916
<POWER>
R926
R927
R928
R929
R930
R931

G. FL INVERTER PCB

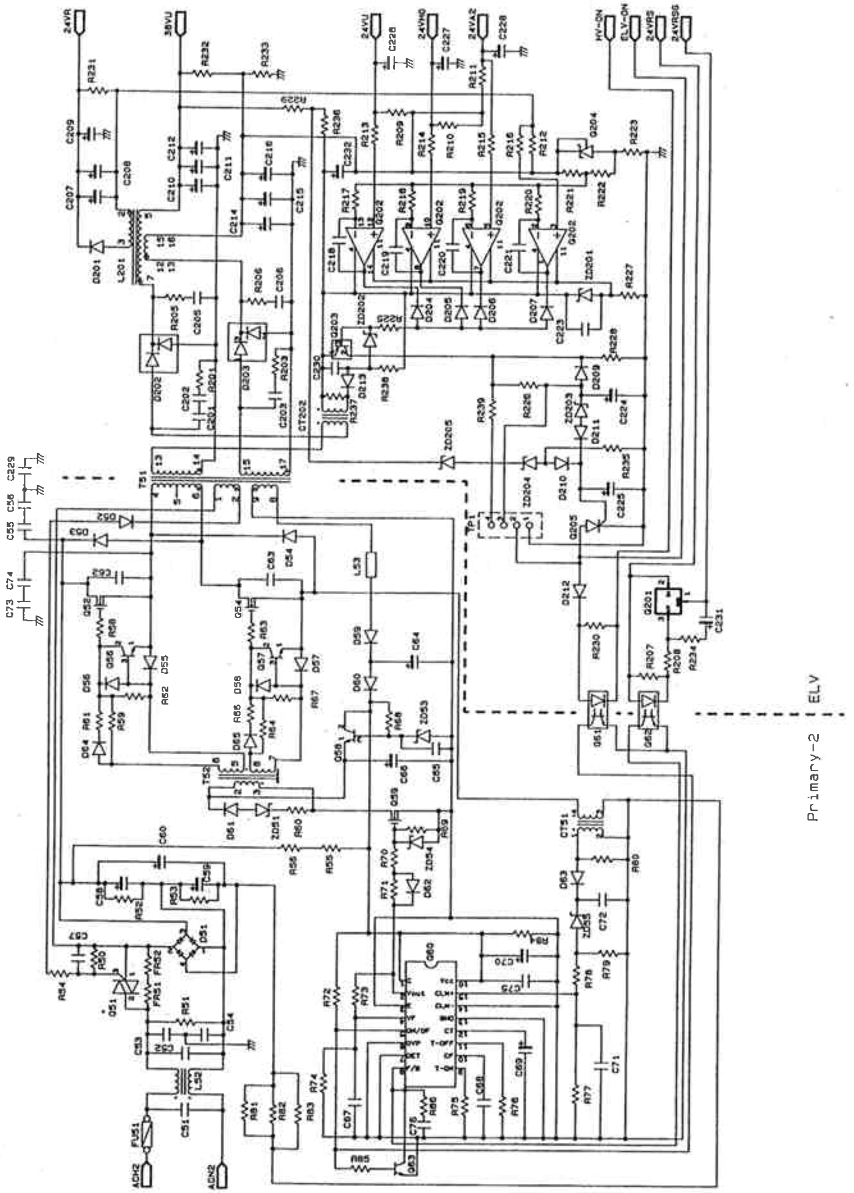

J956
4
2
3
1
C2
T1
8
7
1
2
3
6
5
C1
Q2
L1
Q1
R1
F1
J955
2
J955
1

H. DC POWER SUPPLY PCB (115V model)

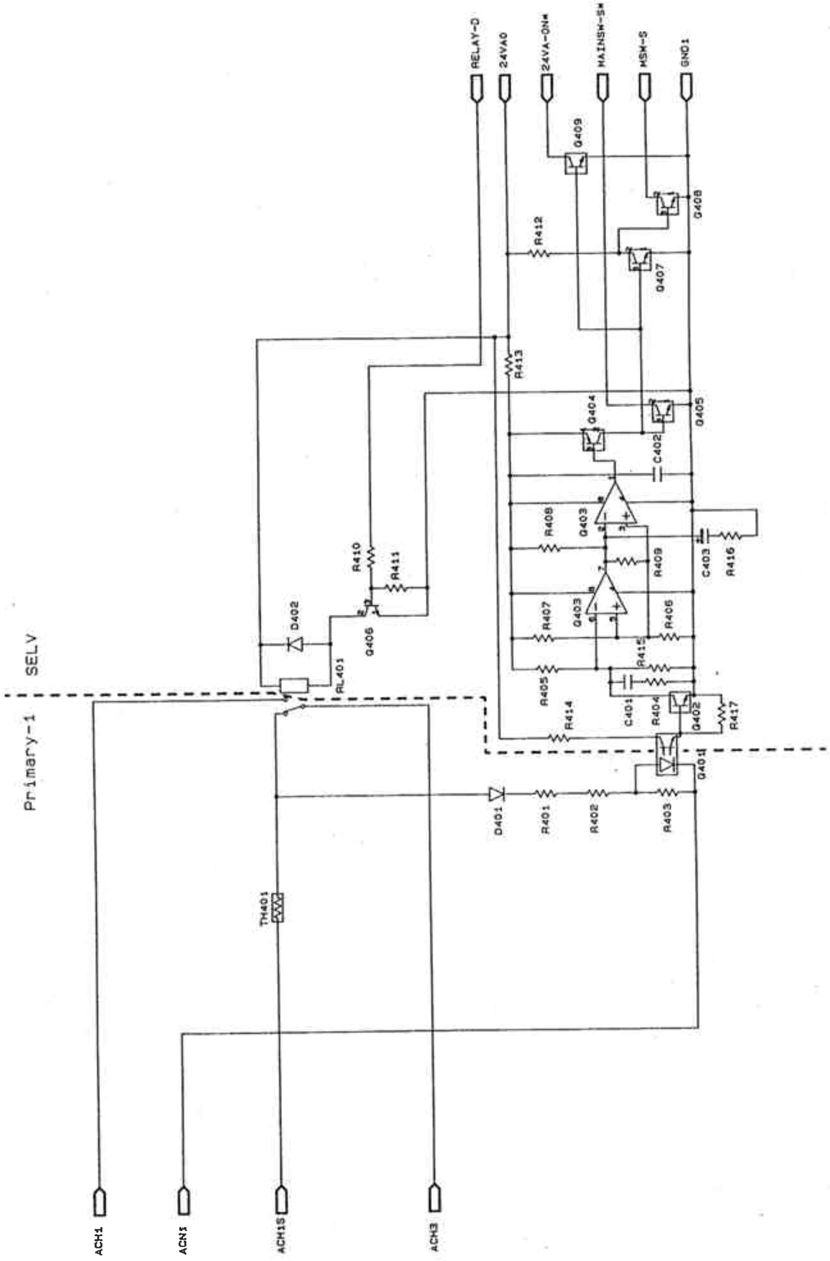
DC Power Supply PCB (1/4)


24VA0
24VA1
24VA-ON
12VU
5VR
MSW-S
ELV-ON
ELV
SELV
Primary-1
12VU0
T1
Q1
Q2
Q3
Q4
Q101
Q102
Q104
Q105
Q107
D101
D102
D103
D104
D105
D106
L1
L2
L3
L101
FU1
TH1
ZD102
ZD103
ZD104
ZD105

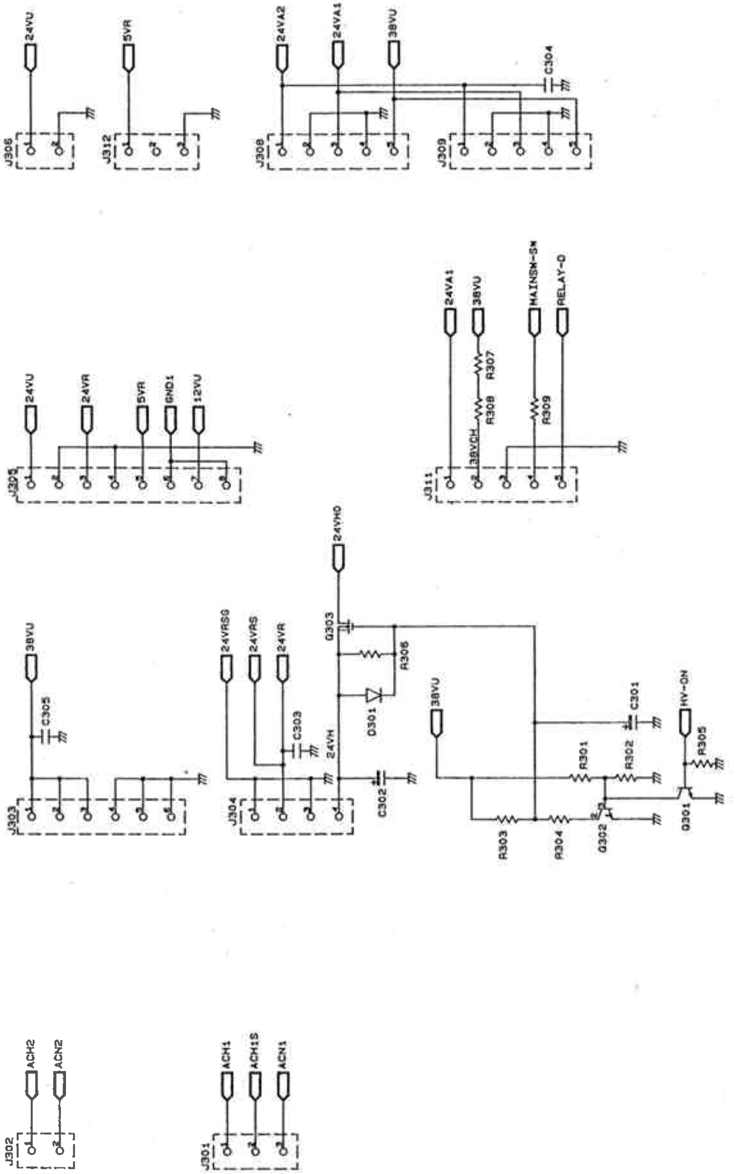
DC Power Supply PCB (2/4)


24VR
38VU
24VU
24VHO
24VA2
HV-ON
ELV-ON
24VRS
24VRSS
ACH2
ACN2
T51
T52
Q60
TP1
ELV
Primary-2

DC Power Supply PCB (3/4)

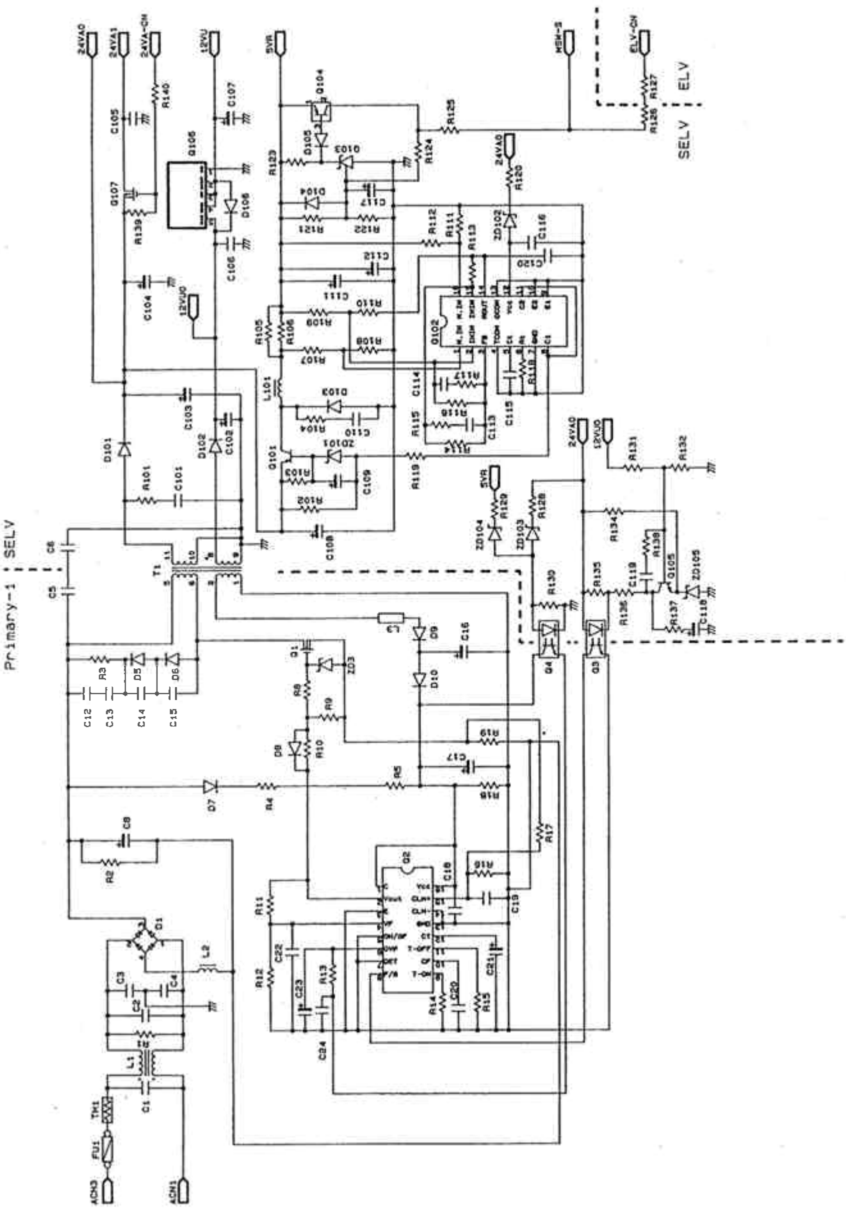

RELAY-D
24VA0
24VA-ON*
MAINSW-SW
MSW-S
GND1
Q409
Q408
R412
Q407
R413
Q404
Q405
C402
R408
Q403
R409
C403
R416
R410
R411
D402
Q406
R407
Q403
R406
R415
R405
C401
R404
Q402
R417
R414
RL401
SEL V
Primary-1
D401
R401
R402
R403
Q401
TH401
ACH1
ACN1
ACH1S
ACH3

DC Power Supply PCB (4/4)

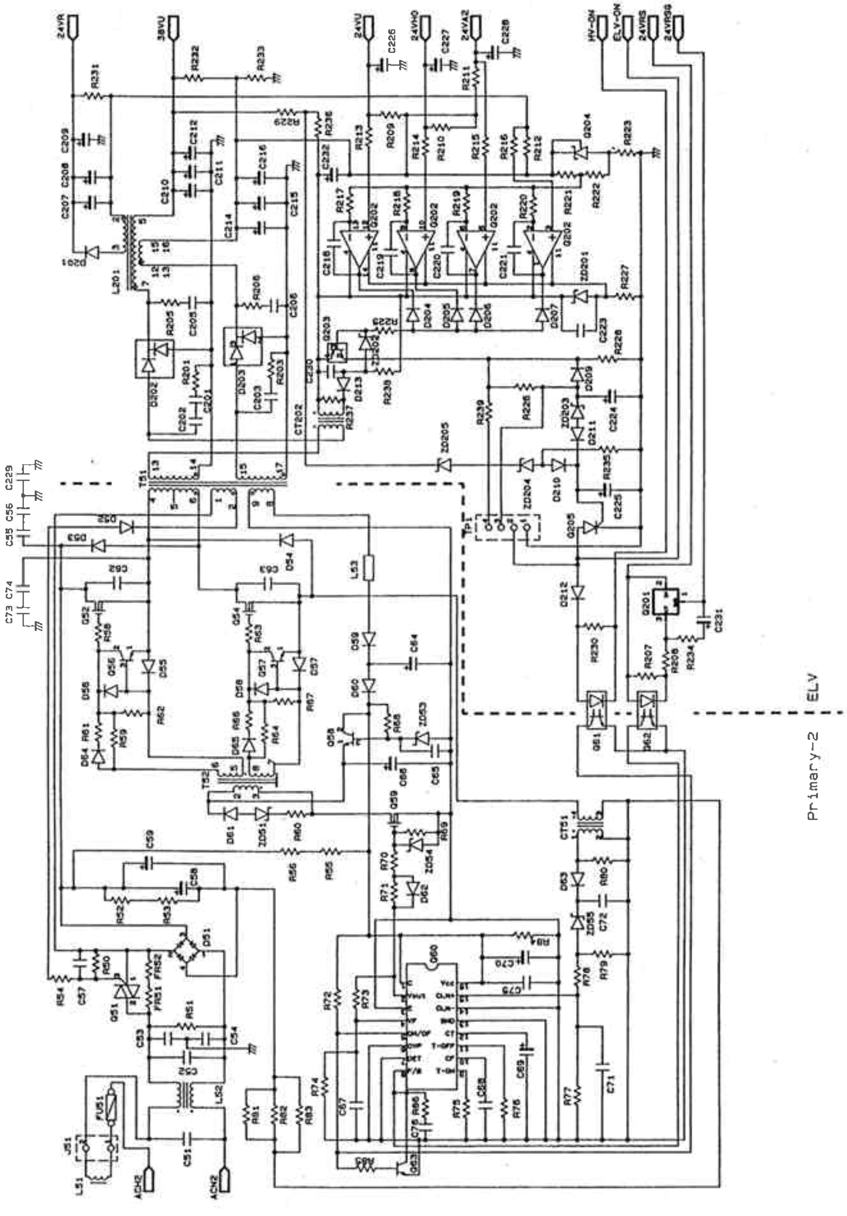

J306
24VU
J312
5VR
J308
24VA2
24VA1
38VU
J309
C304
J305
24VU
24VR
5VR
GND1
12VU
J311
24VA1
38VU
38VCH
R307
R308
MAINSW-SW
R309
RELAY-D
J303
38VU
C305
J304
24VRSG
24VRS
24VR
C303
24VH
C302
24VHO
Q303
R306
D301
38VU
C301
HV-ON
R305
R301
R302
R303
R304
Q302
Q301
J302
ACH2
ACN2
J301
ACH1
ACH1S
ACN1

I. DC POWER SUPPLY PCB (230V model)

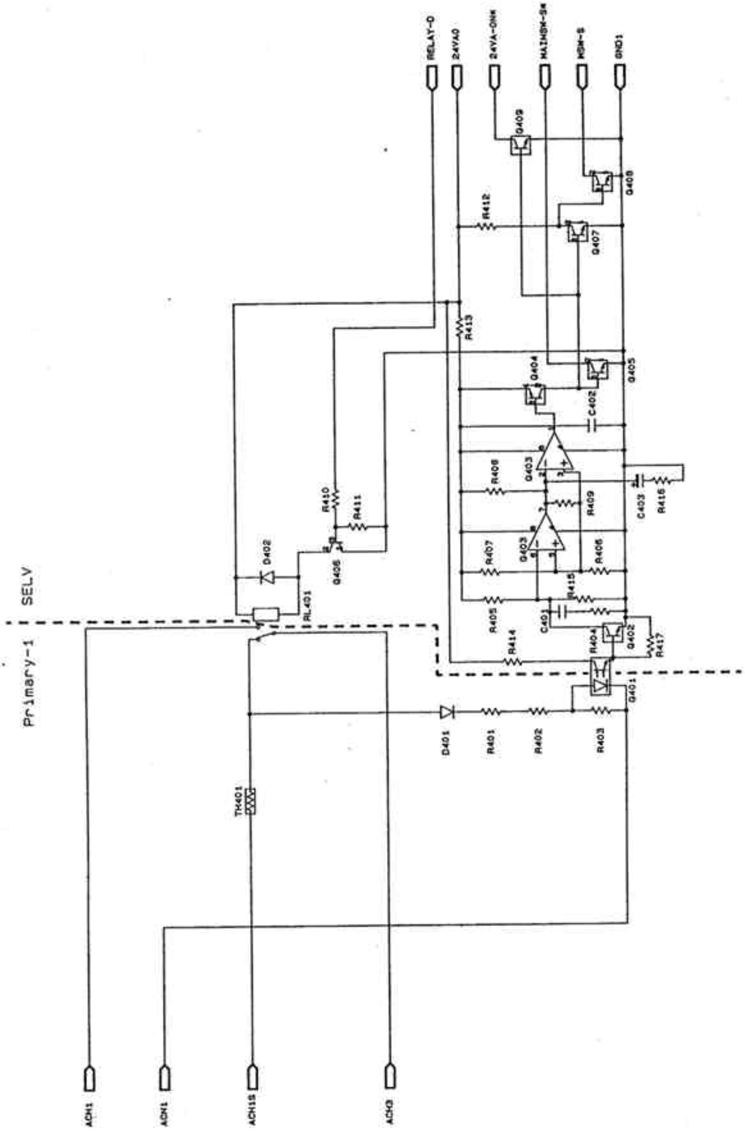
DC Power Supply PCB (1/4)


24VA0
24VA1
24VA-ON
12VU
5VR
MSW-S
ELV-ON
ELV
SELV
Primary-1
SELV
R140
C105
C107
Q104
Q105
D105
ZD103
Q106
Q107
R139
D106
C106
R123
R125
R124
R127
R126
R120
D104
C117
R121
R122
R112
R111
R113
ZD102
C116
C112
C120
C111
C104
12VU0
R110
R109
R105
R106
R108
R107
Q102
C114
R117
L101
D103
D101
C103
D102
C102
R104
C110
R116
R115
C113
C115
R118
R114
ZD101
Q101
R119
R103
C109
R101
C101
R102
C108
24VA0
12VU0
R131
R132
5VR
R129
R128
ZD104
ZD103
R134
R133
Q105
ZD105
R130
R135
C119
R136
R137
C118
Q4
Q3
T1
C6
C5
R3
D5
D6
C12
C13
C14
C15
Q1
ZD3
C3
D9
C16
D10
R8
R9
D8
R10
R19
C17
R5
D7
R4
R18
R17
C8
R2
Q2
C18
R16
C19
R11
D1
L2
C22
R12
C23
R13
C21
C3
C4
C2
R14
C20
R15
C24
L1
TH1
FU1
C1
ACH3
ACH1

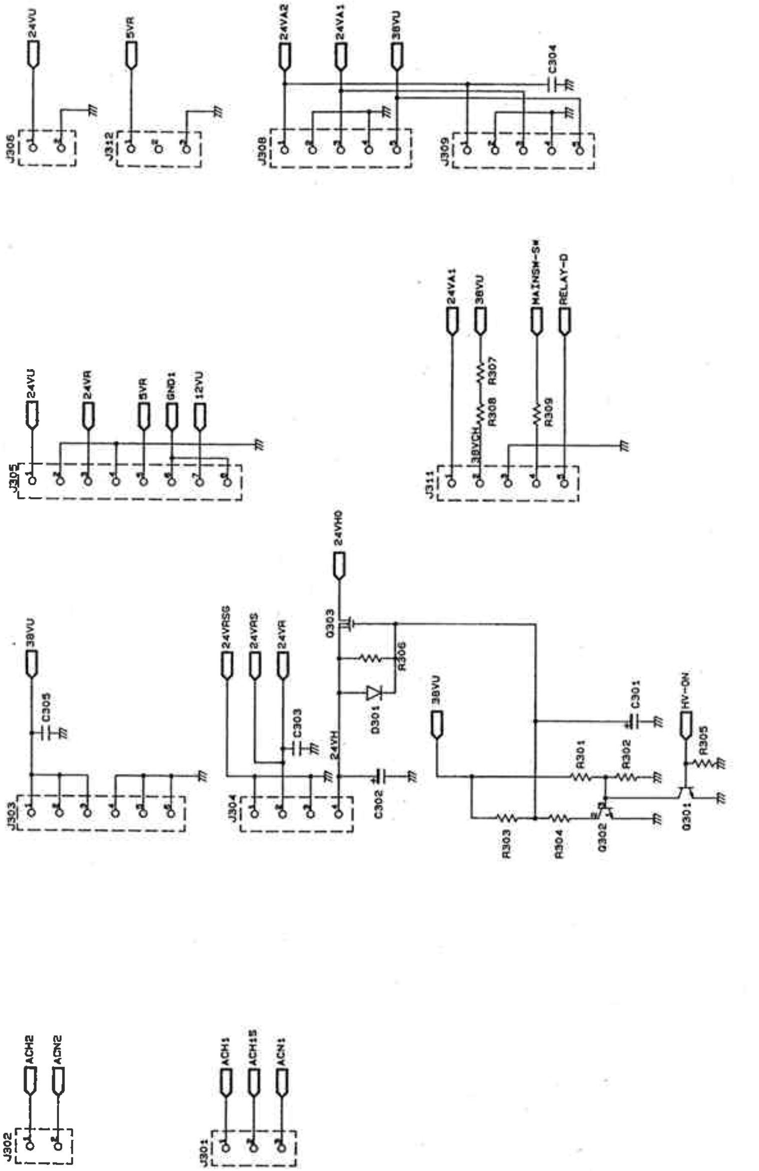
DC Power Supply PCB (2/4)


24VR
38VU
24VU
24VHO
24VA2
HV-ON
ELV-ON
24VRS
24VRSS
ACH2
ACN2
T51
T52
Q60
ELV
Primary-2

DC Power Supply PCB (3/4)

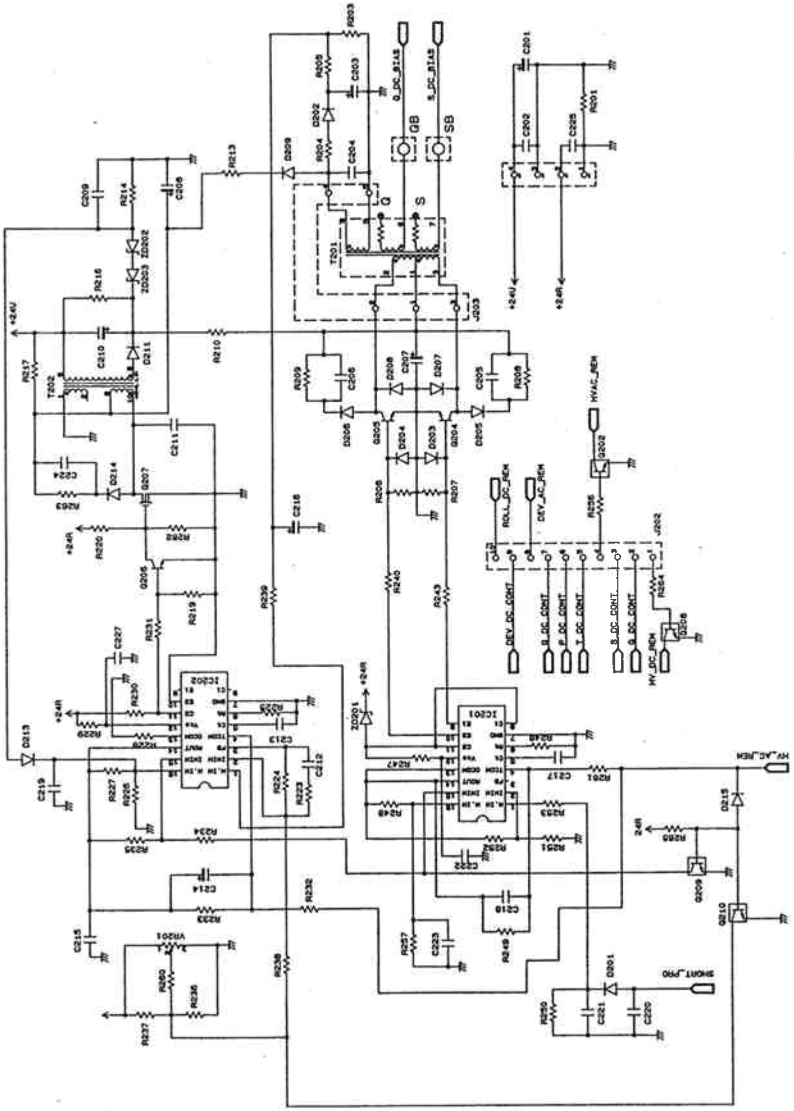

RELAY-D
24VA0
24VA-ON*
MAINSW-S*
MSW-S
GND1
Q409
Q408
R412
Q407
R413
Q404
Q405
C402
R408
Q403
R409
C403
R416
R410
R411
D402
Q406
RL401
R407
R406
R405
R415
C401
R414
R404
Q402
R417
Q401
D401
R401
R402
R403
TH401
SELV
Primary-1
ACH1
ACH1
ACH1S
ACH3

DC Power Supply PCB (4/4)

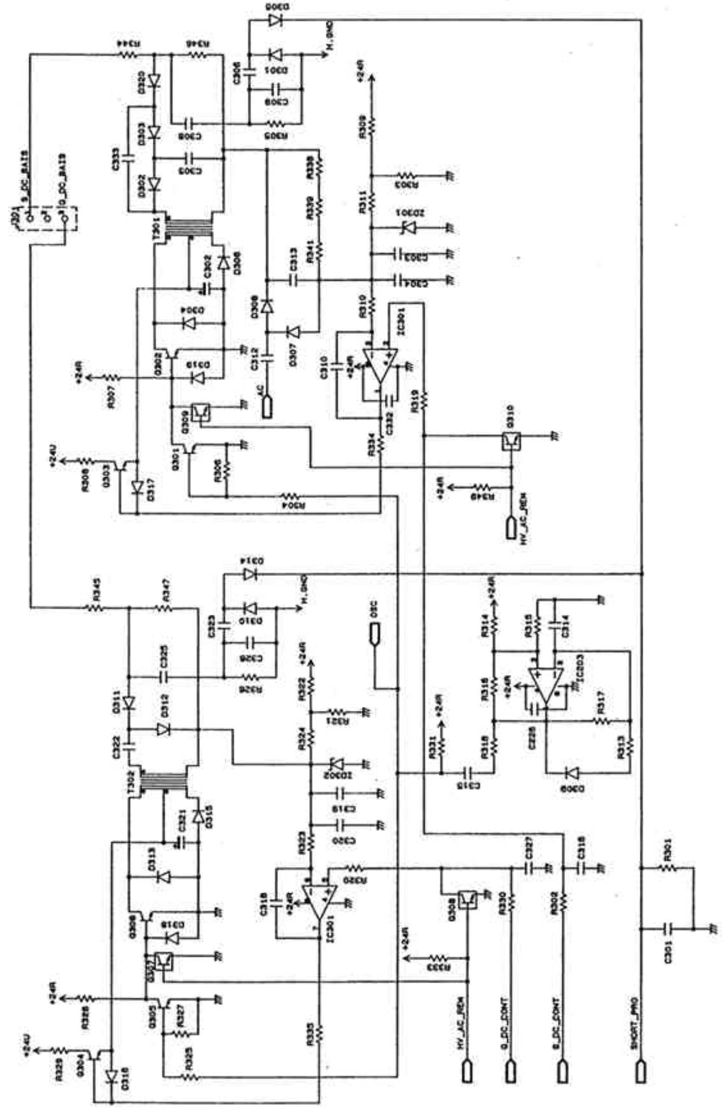

J306
24VU
J312
5VR
J308
24VA2
24VA1
38VU
J309
C304
J305
24VU
24VR
5VR
GND1
12VU
J311
24VA1
38VU
38VCH
R307
R308
MAINSW-SW
R309
RELAY-D
J303
38VU
C305
J304
24VRSS
24VRS
24VR
C303
24YH
C302
24VH0
Q303
R306
D301
38VU
C301
R301
R302
R303
R304
Q302
HV-ON
R305
Q301
J302
ACH2
ACN2
J301
ACH1
ACH1S
ACN1

J. HIGH-VOLTAGE TRANSFORMER PCB

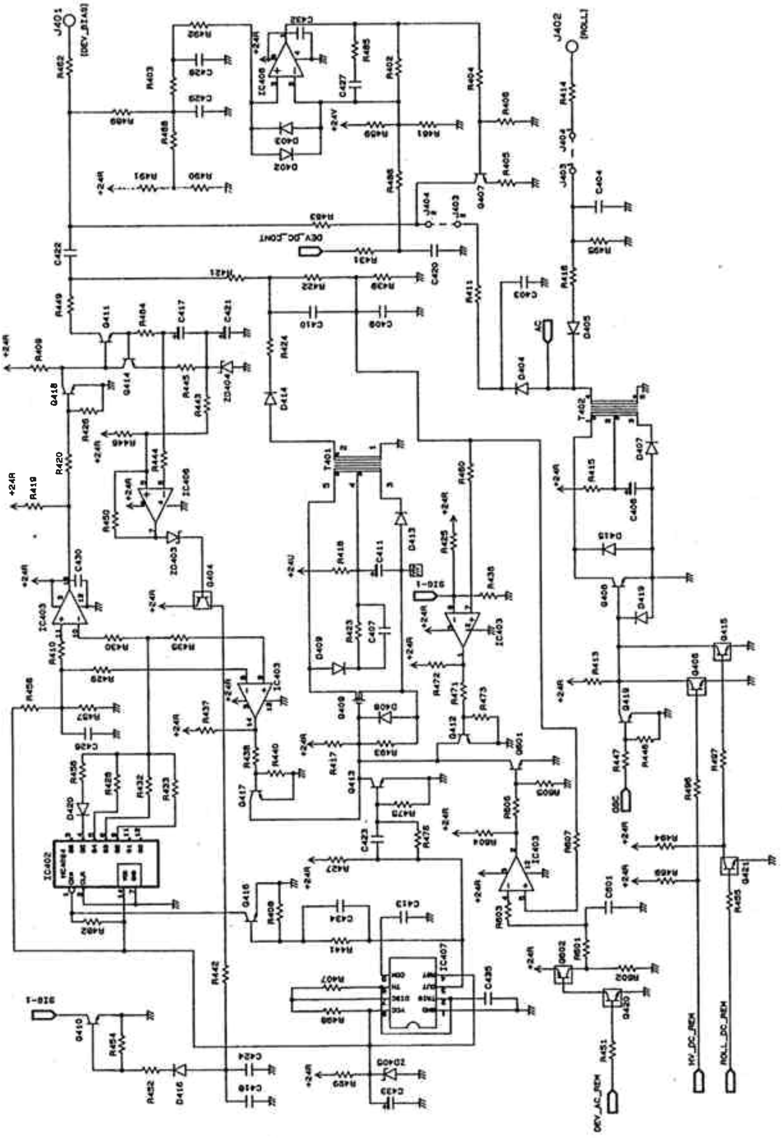
High-voltage Transformer PCB (1/4)


R203
R205
C303
D202
R204
C204
Q_DC_BIAS
S_DC_BIAS
QB
SB
Q
S
T201
J203
C201
R201
C202
C225
+24U
+24R
R213
D209
C209
R214
C208
ZD202
ZD203
R216
+24U
C210
D211
R210
R217
T202
R209
C206
D208
C207
D207
C205
R208
HVAC_REM
D206
Q205
D204
D203
Q204
D205
C211
C224
D214
Q207
R263
Q202
R256
ROLL_DC_REM
DEV_AC_REM
R206
R207
J202
C216
+24R
R220
R262
Q206
R219
R231
R239
R240
R243
DEV_DC_CONT
Q_DC_CONT
P_DC_CONT
T_DC_CONT
S_DC_CONT
G_DC_CONT
HV_DC_REM
R264
Q208
C227
R230
IC202
R229
R228
R225
C213
+24R
ZD201
IC201
R248
R247
C217
R261
HV_AC_REM
D213
C219
R227
R226
R224
R223
C212
R234
R235
R246
R253
R252
R251
C222
D215
24R
R265
Q209
C214
R232
R233
C218
R257
C223
R249
Q210
C215
VR201
R260
R236
R238
D201
SHORT_PRO
R250
C221
C220
R237

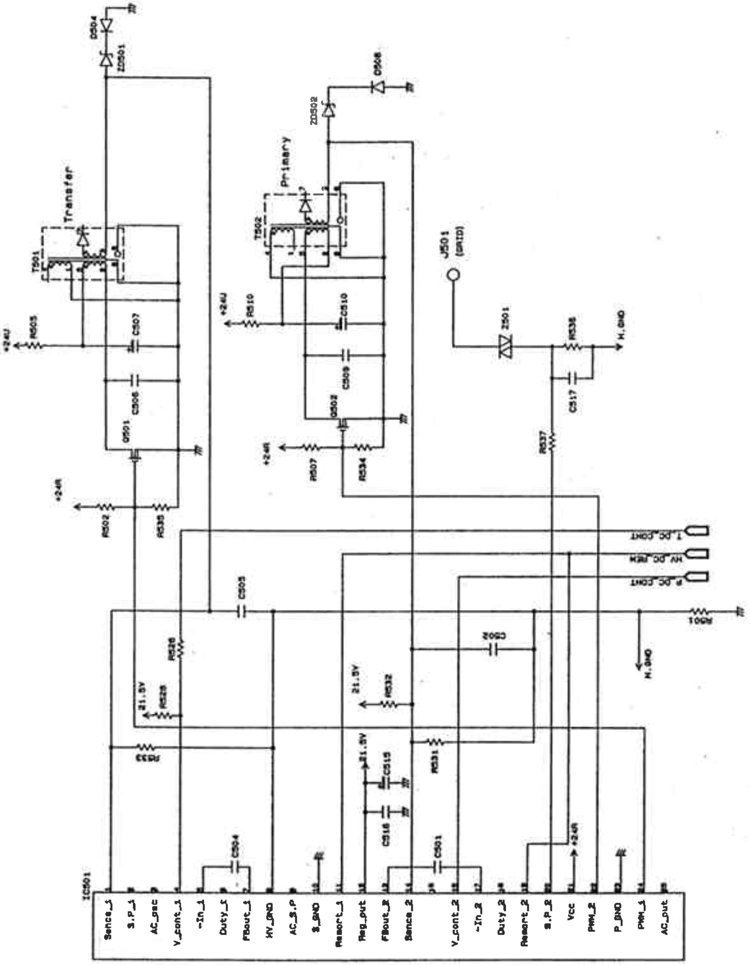
High-voltage Transformer PCB (2/4)


J301
S_DC_BAIS
G_DC_BAIS
R344
R346
D320
D303
D302
C333
C308
C305
R305
C306
D301
C309
D300
H.GND
+24R
R309
R303
R311
ZD301
C303
C304
R310
IC301
R338
R339
R341
C313
D306
D308
D307
C312
AC
T301
C302
D304
D319
Q302
R307
Q309
Q301
R306
R304
Q303
D317
R308
+24U
C310
C332
R334
R319
Q310
R340
HV_AC_REM
D314
R345
R347
C323
D310
C326
R326
C325
D311
D312
C322
T302
C321
D315
D313
D318
Q306
Q307
Q305
R327
R328
Q304
D316
R329
R325
R335
C316
R320
R322
R321
R324
ZD302
C319
C320
R323
OSC
R331
C315
R318
R316
IC303
R314
R315
C314
R317
C228
R313
D309
C327
C318
Q308
R333
R330
R302
G_DC_CONT
S_DC_CONT
R301
C301
SHORT_PRO

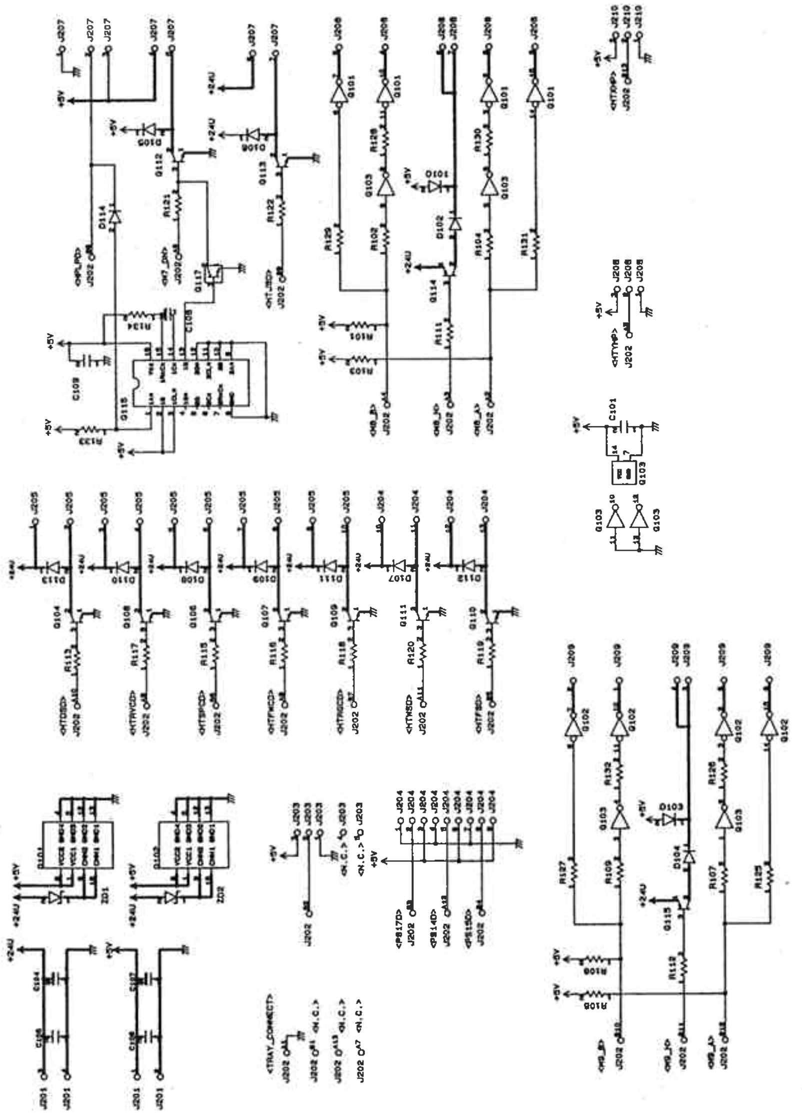
High-voltage Transformer PCB (3/4)


J401
(DEV_BIAS)
J402
(ROLL)
DEV_DC_CONT
DEV_AC_REM
HV_DC_REM
ROLL_DC_REM
T401
T402
IC402
IC403
IC405
IC406
IC407
AC
OSC
SIG-1
+24R
+24V
+24U

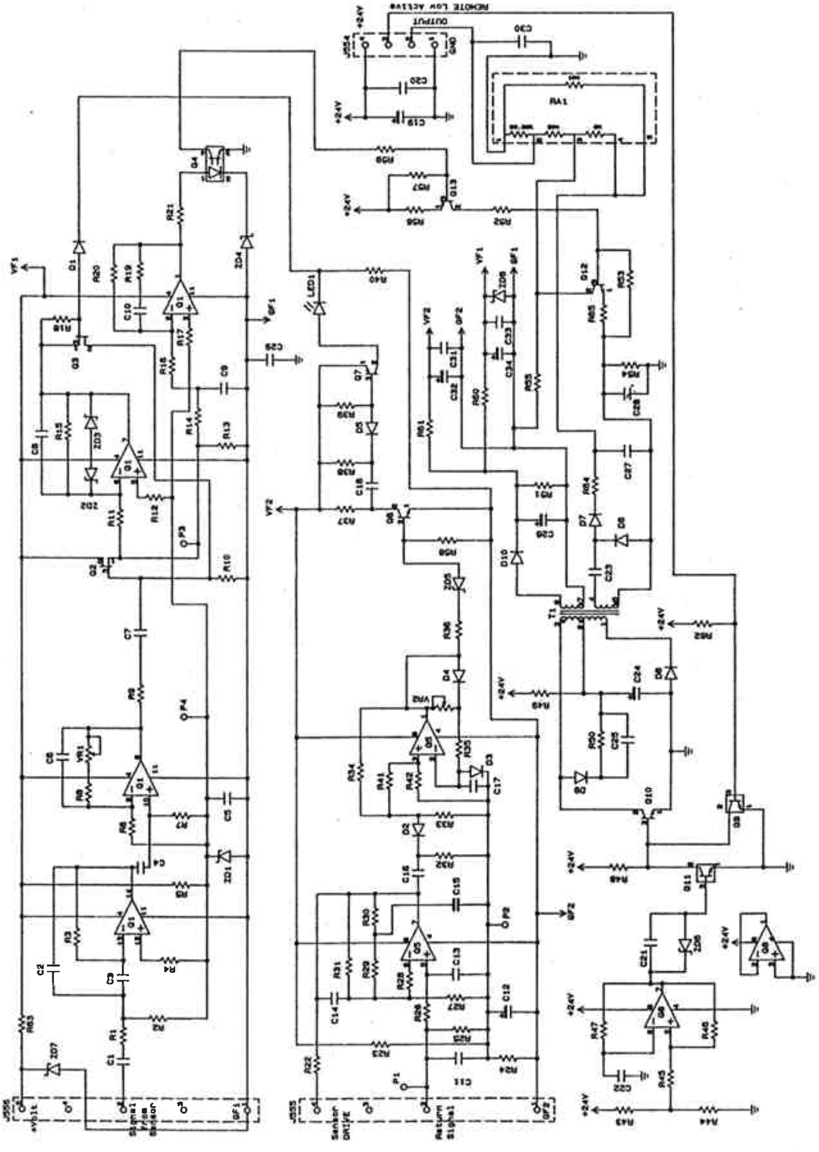
High-voltage Transformer PCB (4/4)


IC501
Sence_1
S.P_1
AC_osc
V_cont_1
-In_1
Duty_1
FBout_1
HV_GND
AC_S.P
S_GND
Remort_1
Reg_out
FBout_2
Sence_2
V_cont_2
-In_2
Duty_2
Remort_2
S.P_2
Vcc
PWM_2
P_GND
PWM_1
AC_out
D504
ZD501
Transfer
T501
+24V
R503
C507
C506
Q501
+24R
R502
R535
D508
ZD502
Primary
T502
+24V
R510
C510
C509
Q502
+24R
R507
R534
J501
(GRID)
Z501
R536
H.GND
C517
R537
T_DC_CONT
HV_DC_REM
P_DC_CONT
C505
R501
C502
H.GND
R526
21.5V
R528
21.5V
R532
R533
R531
21.5V
C515
C516
C501
C504
+24R

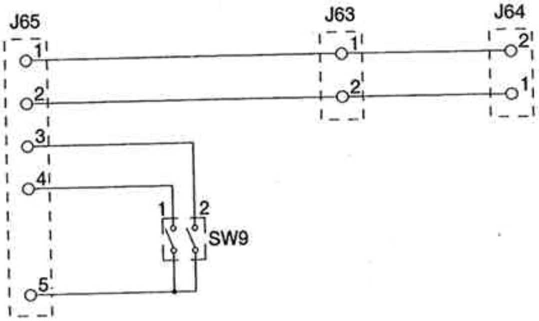
K. HOLDING TRAY CONTROL PCB


J207
J208
J210
J205
J204
J209
J203
J202
J201
Q101
Q102
Q103
Q104
Q105
Q106
Q107
Q108
Q109
Q110
Q111
Q112
Q113
Q114
Q115
Q116
Q117
+5V
+24V
<HTDSD>
<HTRVCD>
<HTSPCD>
<HTFWCD>
<HTRGCD>
<HTWSD>
<HTFSD>
<HTXHP>
<HTYHP>
<TRAY_CONNECT>
<PS17D>
<PS14D>
<PS15D>
<N.C.>
C101
IC101
IC102
ZD1
ZD2

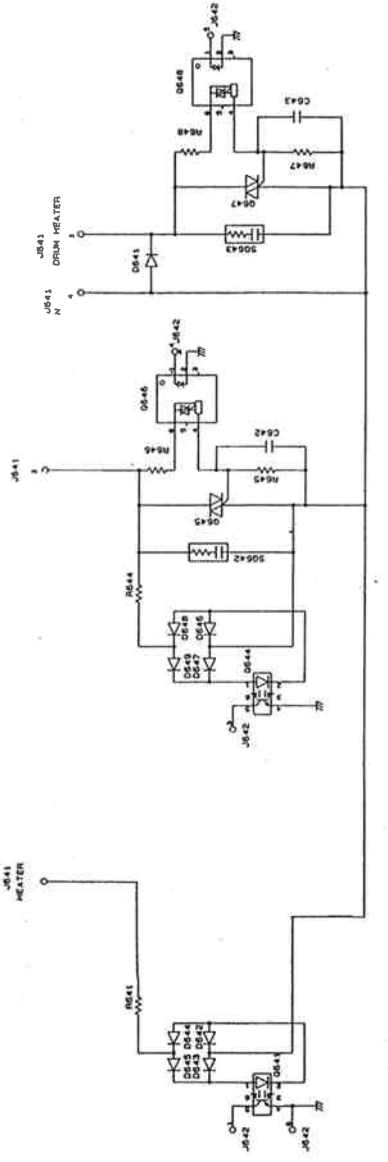
L. POTENTIAL MEASUREMENT PCB


REMOTE Low Active
OUTPUT
J554
+24V
GND
J556
+Volt
Signal from Sensor
GF1
J555
Sensor DRIVE
Return Signal
GF2
VF1
VF2
T1
RA1

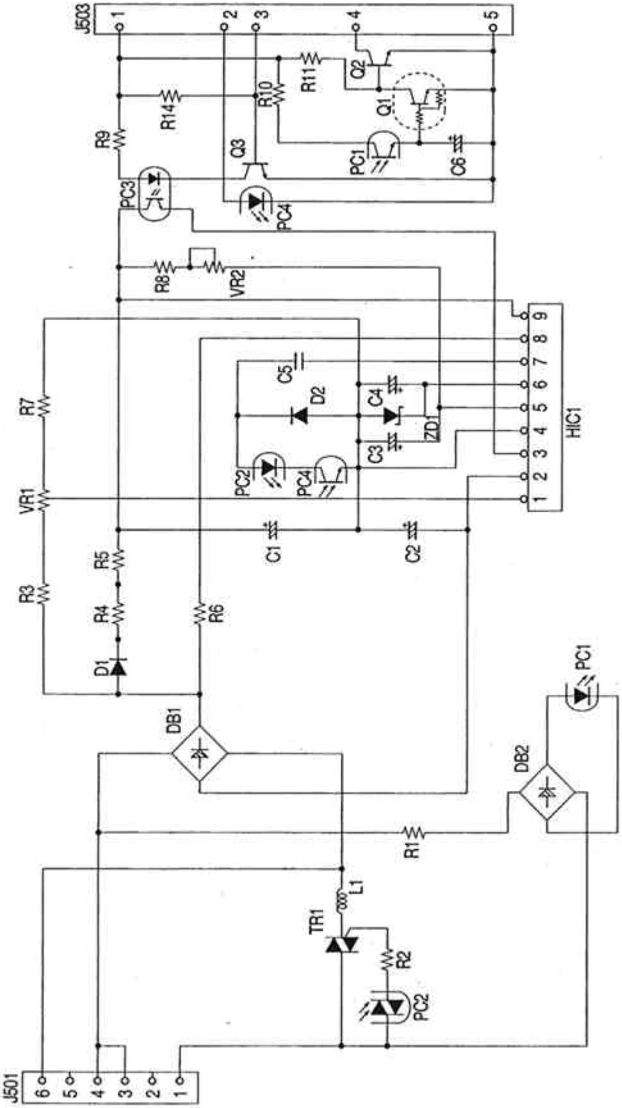
M. OPTIONS COUNTER PCB


J65
J63
J64
1
2
3
4
5
1
2
2
1
1
2
SW9

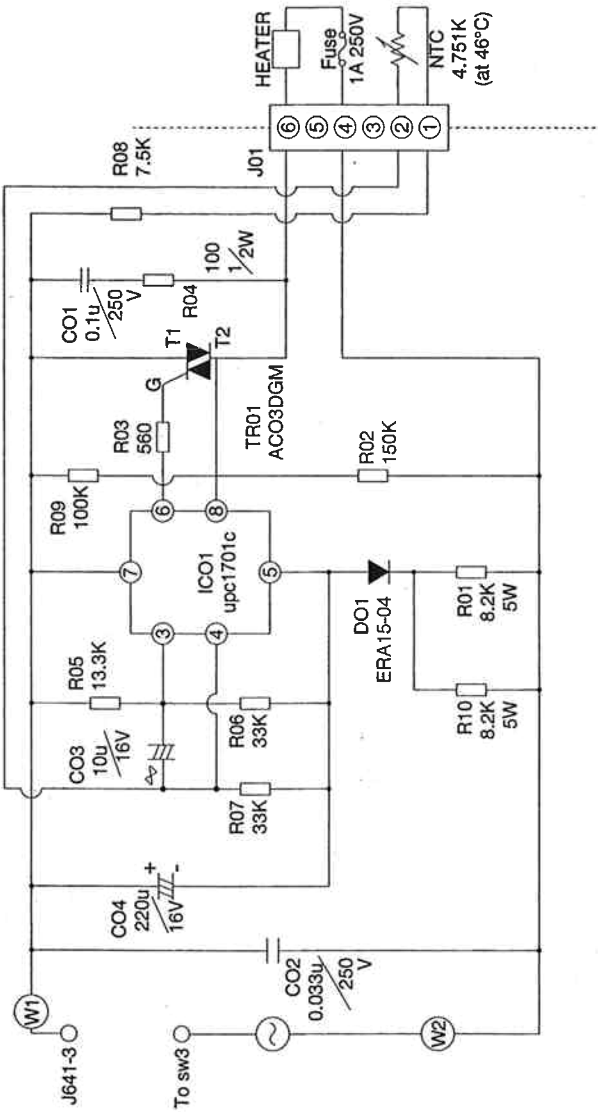
N. AC DRIVER PCB


J542
D648
C643
R648
R647
Q647
SG643
J541 DRUM HEATER
D641
J541 N
J542
D646
C642
R646
R645
J541
Q645
SG642
R644
D648
D646
D649
D647
D644
J542
J541 HEATER
R641
D644
D642
D645
D643
D641
J542
J542

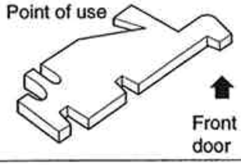
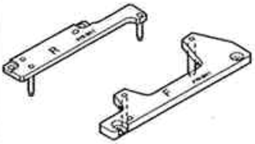
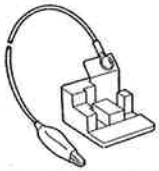
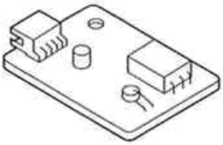
O. LAMP REGULATOR PCB


J503
1
2
3
4
5
R9
R14
R10
R11
Q2
Q1
Q3
PC1
C6
PC3
PC4
R8
VR2
HIC1
9
8
7
6
5
4
3
2
1
C5
D2
C4
C3
ZD1
PC2
PC4
R7
VR1
R3
R5
R4
D1
R6
C1
C2
DB1
DB2
PC1
R1
L1
TR1
R2
PC2
J501
6
5
4
3
2
1

P. DRUM HEATER CONTROL PCB


HEATER
Fuse
1A 250V
NTC
4.751K
(at 46°C)
⑥ ⑤ ④ ③ ② ①
J01
R08
7.5K
100
1/2W
R04
C01
0.1u/250V
T1
T2
G
TR01
AC03DGM
R03
560
R02
150K
R09
100K
⑥ ⑧
⑦
IC01
upc1701c
⑤
③ ④
D01
ERA15-04
R01
8.2K
5W
R10
8.2K
5W
R05
13.3K
R06
33K
C03
10u/16V
R07
33K
+
-
C04
220u/16V
C02
0.033u/250V
W1
W2
J641-3
To sw3

Q. SPECIAL TOOLS LIST

No.	Tool description	Tool No.	Shape	Notation	Remarks
1	Door switch	TKN-0093	 Point of use Front door	A	
2	Cleaning oil	TKN-0464	Canon クリーニングオイル CLEANNING OIL HUILE DE NETTOYAGE CANON INC. JAPAN / JAPON	A	For cleaning the fixing roller (10 packs/box)
3	Mirror positioning tool	FY9-3011		B	For adjusting the No. 1/No. 2 mirror position (front/right as a pair)
4	Potential sensor checking electrode	FY9-3012		B	For checking the potential sensor.
5	Environment sensor checking tool	FY9-3014		B	For checking the environment sensor.

R. SOLVENTS AND OILS

No.	Description	Use	Composition	Description
1	Ethyl alcohol (Etanol) Isopropyl alcohol (Isopropanol)	Cleaning: e.g., glass, plastic, rubber parts; external covers	C_2H_5O $(CHZ_3)_2$ CHOH	• Do not bring near open fire. • Procure localy. • Isopropyl alcohol may be substituted.
2	MEK	Cleaning: e.g., metal; oil or toner	$CH_3COC_2H_5$	• Do not bring near fire. • Procure locally.
3	Heat-resisting grease	Lubricating; e.g., fixing drive assemblies	Lithium soap (mineral oil family) Moblybdenum bisulfide	• CK-0427 (500 g/can)
4	Lubricant oil	Lubricating: scanner rail; spring clutch	Mineral oil (paraffin family)	• CK-0451 (100 cc)
5	Lubricant oil	Lubricating: pick-up assembly roller bushing (FS2-1005-000)	Mineral oil (paraffin family)	• CK-0524 (100 cc)
6	Lubricant oil	Lubricating: drive and friction parts	Slicone oil	• CK-0551 (20 g)

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